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**FACTORS INFLUENCING ADHERENCE TO ANTIRETROVIRAL  
THERAPY (ART) AMONG ADULT PEOPLE LIVING WITH HIV/AIDS  
IN SARIS, KALITY AND AKAKI HEALTH CENTERS, ADDIS ABABA,  
ETHIOPIA.**

**A RESEARCH SUBMITTED TO DEPARTMENT OF PROJECT  
MANAGEMENT, SCHOOL OF GRADUATE STUDIES, ST. MARY'S  
UNIVERSITY**

**BY**  
**NATANIM ASSEFA SORSU**  
**ID: - SGS/0255/2012A**

**JUNE, 2021**  
**ADDIS ABABA**



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**JUNE, 2021  
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## DECLARATION

I, the undersigned, pronounce that the thesis is my unique work, has not been displayed for degrees in any other University or College and all source of materials utilized for the proposal have been appropriately acknowledged

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## **LETTER OF CERTIFICATION**

This is to certify that Natanim Assefa has conducted the thesis entitled: “Factors influencing adherence to Antiretroviral Therapy (ART) among adult People living with HIV/AIDS in Saris, Kality and Akaki Health Centers, Addis Ababa, Ethiopia” under my supervision. His Work has got my approval for the assessment.

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Name of Advisor: Chalachew Getahun (PhD)

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Date\_\_\_\_\_

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## **LIST OF ACRONYMS/ABBREVIATIONS**

- ART-----Anti-Retroviral Therapy.
- AIDS -----Acquired Immunodeficiency Syndrome
- EDHS-----Ethiopian Demography Health Survey.
- HIV-----Human Immune deficiency Virus
- LTFU-----Lost to follow up
- PLHIV-----People Living with HIV/AIDS

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## **ABSTRACT**

*This study was attempted to assess factors influencing adherence to ART among adult people living with HIV/AIDS in Saris, Kality and Akaki health centers, Akaki-Kality Sub city, Addis Ababa. A quantitative cross-sectional institution based study was conducted and the sample was taken from the three health centers proportionally based on the number of current patients on ART. The main objective of this study was to assess factors influencing adherence to Antiretroviral Therapy (ART) among Adult People Living with HIV/AIDS in Saris, Kality and Akaki Health Centers Addis Ababa, Ethiopia. The mean of age respondents was 38 years, from the total respondents (422), 315 (74.64%) were females. Respondents' one month adherence were assessed out of which, 128 (30.3%) had good adherence, 129(30.5%) of them had fair adherence and 165 (39%) had poor adherence. Lack of expected services from health facility by the respondents was directly associated with adherence ( $p= 0.015$ ), the study shows as there was significant association of adherence and lack of different services provided by health facilities such as lack of good relationship between health care providers, lack of supplementary food, lack of other necessary drug and lack of differentiated service delivery. Smoking cigarette is also directly associated with adherence to ART, those who are smoking were less likely adhere to ART ( $p=0.02$ ). Finally, the study hints that quality management/improvement practice of Saris, Kality and Akaki health centers need to be assessed to measure service quality and the satisfaction level of beneficiaries.*

**Key words:** Adherence and Antiretroviral Therapy

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background

The emergence of the HIV epidemic is one of the biggest public health challenges the world has ever viewed in recent history. In the remaining three many years HIV has unfolded rapidly and affected all sectors of society: young people and adults, guys and women, and the wealthy and the poor. HIV is a major public health disease caused by a retrovirus that destroys human T-lymphocytes, making them more susceptible to various infectious diseases. Acquired immunodeficiency syndrome (AIDS) is the advanced stage of HIV infection. Since the inception of the first case reported in 1981, death rates were increased to more than 2.5 million in 2005; later, it was decreased with the implementation of emergency precautions and controlling measurements by the WHO and other NGOs globally (UNAIDS, 2016).

Still 36.7 million people are living with HIV from a report in 2015, The global prevalence was 0.8 percent in 2015, with a mean age range of 15 to 49 years; mortality have fallen by more than 45 percent since 2005, thanks to antiretroviral therapy (ART) scale-up. Those were completed quickly and efficiently. Those patients who suffer from AIDS, their CD4 count is below 200 cells/mm should offer ART. The ART will shorten the illness duration and improve the quality of life by reduction of viral load and increasing the level of CD4 cells (WHO, 2017).

In 2006, Ethiopian government expanded the access to the anti-retroviral therapy to poor patients; the ART hubs raised to 260 Health facilities. Adherence can be measured using different methods including medication event monitoring system, pill counting system, prescription refill, and self-adherence reports. Pill counting adherence can be calculated by counting the remaining doses of medication. Self-adherences are often done by themselves, but because their forgetfulness might not give good results. However, no single adherence measurement should not be considered as accurate; it can be a combination of more than one measure of adherence can give good information (Markos, 2008).

Adherence is a dynamic process that changes over time and there has been considerable progress of access to ART and HIV counseling, provision of free ART services, expansion of treatment and increased awareness over the past years. The magnitude and determinants of adherence

differ across geopolitical zones with their unique characteristics of culture, economic status, religion, educational status, and health-seeking behaviors. Therefore, with the changes in service delivery and variation in socioeconomic status, it is essential to measure adherence from time to time and in different geographical settings (Muktar. A & Tahir H, May 2019)

Adherence to ART has been recognized as critical thing of person on treatment and programmatic remedy success. Higher stage of adherence greater than 95% is crucial to get the first-class effect out of antiretroviral treatment. Studies on drug adherence in the developed world established that higher ranges of drug adherence are associated with improved virological, immunological and medical outcomes. Adherence to antiretroviral remedy has also been documented as the 2nd strongest predictor of progression to AIDS and death, after CD4 rely in PLHIV receiving cure. Good Adherence is drug adherence of 95% or  $\leq 2$  missed drug doses of 30 doses or  $< 3$  missed drug doses of 60 doses. Fair Adherence is drug adherence of 85–94% or 3–5 missed drug doses of 30 doses or 4–9 missed drug doses of 60 doses.<sup>18</sup> Poor Adherence is drug adherence of  $< 85\%$  or  $\geq 6$  doses of missed ART drug doses of 30 doses or  $> 9$  doses missed ART drug doses of 60 doses (UNAIDS, 2016).

## **1.2. Statement of the problem**

Adherence to ART is still a barrier to meet the national target i.e. achieving 95% of PLHIV with suppressed viral load. Poor adherence to antiretroviral therapy (ART) is associated with low viral load suppression, which risks the immediate health of the patient, but also risks creating permanent treatment resistance to that particular drug or combination of drug within a specific combination therapy regimen. This may have its own negative effect on treatment costs as well as therapeutic options.

According to Tiruwork's (Aug, 2014) study, in Zewditu memorial hospital, the reason of poor adherence to ART are highly diverse, and include complexity of therapeutic regimens (e.g, pill burden and dosing frequency), treatment side effects, low health literacy and poor patient-physician relationship. Different approach of treatment, such as the use of fixed-dose combinations of ART agents to minimize dosing complexity and also educational interventions, such as medication therapy management initiatives, have been shown to improve adherence to ART. It is important that all health care providers try to solve potential barriers to adherence in order to succeed in viral suppression and bring better outcomes in patients with HIV.

Adherence to ART among diabetic patient in Zewuditu memorial hospital is influence by different factors that could be viewed from different angles; education level of HIV positive individuals has a significant role in adherence to ART; illiterate and patients with lower educational status had a difficulty to manage the prescribed chronic disease drugs. Number of medication prescribed to patients who had complex regimen were more likely to have poor adherence, Availability of medications of diabetes was also variables that found to be significantly associated with the adherence status (Muhammed A, et al, April 2017)

At present there are many health centers that provide ART service. The experience in implementing ART service identified the following major factors as bottlenecks to adherence treatment such as: Forgetfulness, Patient and physician relationship, drug side effect, Work overload, pill burden, poor patient information and knowledge and poverty. The previous studies didn't include the new differentiated service delivery model that are new and currently on implementation in the health facilities to measure as factors influencing adherence to ART, this study included availability of differentiated services as health facility related factors that influence adherence to ART.

### **1.3 Research Questions**

The following research questions were also addressed by this study:

- What is the current status of ART adherence among PLHA attending ART clinic in Saris, Kality and Akaki Health Centers.
- What are the different factors related to adherence to antiretroviral therapy?

### **1.4 OBJECTIVES**

#### **1.4.1 General Objective**

- The main objective of this study is to assess factors influencing adherence to Antiretroviral Therapy (ART) among Adult People Living with HIV/AIDS in Saris, Kality and Akaki Health Centers Addis Ababa, Ethiopia.

#### **1.4.2 Specific objectives**

- Determine the current ART adherence rate among adult PLHIV in Saris, Kality and Akaki Health Centers
- Identify the factors influencing adherence to ART in Saris, Kality and Akaki Health Centers.

### **1.5 Significance of the research**

Adherence is usually flexible process and small is known about the rate and determinants of adherence in Ethiopia. ART program were decentralized to health centers but little is known about the rate and factors that affects adherence.

In this study, it was aimed to demonstrate prevalence of adherence of PLWHA (individuals living with HIV/AIDS) to ARV and related determinants of adherence to PLWHA within the study area, so as to make lessons for future endeavors at national level.

It is anticipated that the findings obtained from this research will contribute to information and understanding of non-adherence to ARVs and be valuable in designing intervention that will be undertaken to address ARV adherence. The collected data will be utilized by organizations included in this study to deal with the challenges related with non-adherence

## **1.6 Scope of the study**

The research was focused on adult people living with HIV (those aged at least 18 years, who gave informed consent and were free of neurocognitive impairments) and currently receiving anti-retroviral therapy in Saris, Kality and Akaki health centers.

## **1.7 Limitation of the study**

The presence of COVID-19 pandemic was the major limitation to conduct the study in all ART providing health facilities found in Akaki Kality sub-city and also unable to conduct focus group discussion with ART outpatient department staffs in order triangulate the determinants of adherence to ART identified from beneficiaries against the response provided by HF's staffs

## **1.8 Organization of study**

The organizations of this study are divided into chapters. This study has organized with five chapters and a number of subtitles within each chapter, Chapter one of the studies is title as introduction with subtitles background of the study, statements of the problem, Research questions, research objectives, significance, scope and organization of the study.

The Second Chapter of this study is Literature Review. Under this part of the study there are many subdivisions like Introduction, Conceptual, Theoretical and Empirical literatures is presented

Research Design and Methodology was organized under chapter three of the study. Study design, sampling techniques and sample size, sample size and methods, data collection techniques and procedure, variables description and measurement, data analysis techniques, data collection tools and procedures reliability & validity, data analysis techniques, ethical considerations and dissemination of results were presented .

The interpretation and discussion part of this study was placed under chapter four of the study with different Socio demographic and Economic characteristics of respondents and different factors influencing ART adherence among adult ARV users.

Chapter Five is just about Conclusion and Recommendation of the Study that summarize the findings and recommend based on the findings identified by the study.



# **CHAPTER TWO**

## **2. Literature Review**

This section provide of conceptual, theoretical, empirical studies and synthesis of the reviewed literature. The first part is conceptual frame work which summarizes the concepts and describes their relationships of the variables. The second part of the review is the theoretical literature review, which focuses on reviewing of concepts and theories related to the research objectives. It reviews the articles and books. The third part of the literature review is empirical literature review, which discusses the practical experiences and compares the theories and what they look like on the ground based on empirical data

### **2.1 Conceptual Literature Review**

Treatment adherence as is the extent to which an individuals' habit of – taking medications, following a diet and/or executing lifestyle changes – corresponds with agreed recommendations from a health care provide. For ART, a high level of sustained adherence is necessary to inhibit viral duplication and improve immunological and clinical outcomes; lower the risk of developing ARV drug resistance; and minimize the risk of transmitting HIV (FMOH, 2017).

Non-adherence is the leading cause of treatment failure, with the risk of developing medication resistance due to inadequate viral suppression. Subsequent transmission of first-line ART-resistant HIV strains increases the demand for second-line treatment often associated with poorer patient health outcomes and increasing healthcare costs. For these reasons, a thorough understanding of determinants of adherence to ART is paramount (WHO, 2017).

### **2.2 Theoretical Literature Review**

Studies on life-long drug adherence behaviors have been influenced by cognitive based theories such as health belief model, planned behavior and cognitive model of compliance theories.

#### **2.2.1. Cognitive model of compliance**

It draws attention to the importance of the relationship between patient and healthcare providers; it points out a host of other factors such as social support, the disruptive nature of adherence on daily lifestyle, and the patients' beliefs and attitudes in the effectiveness of the medications adherence (Ogden, 2004).

### **2.2.2. The theory of planned behavior (TPB)**

It is a development of the TRA (Theory of Reasoned Action) (Nejad, Werth, & Greenword, 2005). This theory postulates that an individual's behavior is determined by one's intention, which in turn is determined by three main predictors: attitudes; subjective norms; and, perceived behavior control. Attitudes in TRA refer to an individual's beliefs about the outcomes of his/her behavior and an evaluation of the importance of such an outcome. Subjective norms refers to social pressure, that is, expectation of approval or disapproval of such an action by significant others. Behavioral control is an individual's belief in the availability of the requisite resources to accomplish an action such as information, abilities, dependence or independence from others etc. As an extension, TPB has four principal areas: attitudes towards behavior; subjective norms; perceived behavioral control; and socio-demographic variables. Thus, Treatment seeking behavior can be used as an indicator of a patient's willingness to preserve life, and is crucial to personal, societal and national development.

### **2.2.3. The Health Belief Model (HBM)**

HBM was developed in the 1950s' work by Rosenstock with an intention to predict which individuals would or would not take specific actions to avoid illness (Rosenstock, Stretcher & Becker, 1988). From that point forward, the HBM has been utilized to investigate a variety of long- and short-term human's health behaviors. The dimensions of the HBM are perceived susceptibility, perceived severity, perceived benefits and perceived barriers. The HBM proposes that in order for an individual to take action to avoid a disease, he/she has to be susceptible to a disease. The HBM is used in health behavior that can be grouped into three main categories: Preventative health behaviors, sick role behaviors, and clinical use (Nejad, 2005). With reference to the concepts introduced about the HBM, adherence can be taken to be a desired health related action or behavior that can be influenced by the perceptions, beliefs and cues to action of an individual. If these perceptions and beliefs are not re-enforced or addressed they may lead to non-adherence. As a result, the HBM provides a useful framework for analyzing psychosocial aspects that may influence medication adherence.

## 2.3 Empirical Literature

An ideal adherence rate of 81 percent was observed in a trial of 154 HIV + patients in the Deep South of Mississippi, where adherence was determined by self-report (Amico et al 2009:70). The rate of adherence among 9088 participants from the Supplement to HIV and AIDS Surveillance (SHAS) Project was also studied in a cross-sectional study in the United States. Only 84 percent of the subjects had adhered to 95 percent of the prescribed ART doses in the 48 hours prior to the interview, according to the findings (Sullivan, et al 2007:3). Similarly, in a study of HIV/AIDS patients who are homeless or insecurely housed in three US states, an overall two-day adherence rate of 89 percent was recorded (Royal, et al 2009:451).

Another study included 110 HIV-positive persons who were recruited from San Francisco, California, homeless shelters, free food programs, and low-income, single-room-occupancy hotels as part of the Research on Access to Care in the Homeless (REACH) cohort, a systematic sample of HIV-positive adults. Unannounced pill tests revealed that the average rate of adherence to therapy was 70% (Bangsberg 2006:940).

Although the majority of adherence studies in SSA found a greater rate of adherence among HIV-positive patients, other research revealed a significantly lower rate of adherence. For example, in Lusaka, Zambia, a large programmatic cohort study involving 18 primary care centers administering ART measured adherence using the medication possession ratio (MPR). Only 17,060 (62.9 percent) of the 27,115 treatment-naive adults who started and followed ART for at least 12 months showed ideal adherence of 95 percent, according to the researchers ( Chi et al 2009:748).

Similarly, other studies in Zambia showed comparable results, with Goldman et al (2008:1032) reporting that just 58 percent of patients achieved optimum adherence as judged by MPR. Only 59.2 percent of 255 study participants were found to be adherent, according to (Birbeck, et al, 2009:670-671).

A study of 125 HIV-positive outpatients in Benin using self-report and pill counting found that adherence was 58.1 percent 2.4 percent, much lower than that reported in several other Sub-Saharan African countries (Erah & Arute 2008:146-150).

According to study conducted in northern Tanzania the findings of the study shows that, Non-adherence was defined as collecting less than 95% of expected monthly refills in the previous 2 years (Selemank, 2017).

Similar study done in Kenya the result revealed that 63.4% had ever failed to adhere and 51.1% had not adhered in a month prior to the study. Main reasons for non-adherence were forgetfulness; busy work schedule, distance/fare to the clinic long queue (25.5%), lack of family support and long waiting time, clients lacked treatment supporters and had not disclosed their status. Only did not receive family support, experienced stigma at family level while reported stigma existed at community level and spiritual healing with non-adherence (Sammy K, Lucy M, 2019).

A study done in Benishangul Gumuz Regional state, the result revealed that 39.7% of the participants were found non-adherence to ART. Strong association was the following variables young age below 25 years, urban residential area, and lack of employment, food insecurity, malnutrition and opportunistic infection (Fikad, 2019).

Another Ethiopian study found a 72.4 percent adherence rate, with adherence being higher among patients with family assistance than among those living alone. Running out of prescriptions (27.3%), being away from home (21.2%), and being preoccupied with other things were all shown to be factors for non-adherence (MOH, 2017).

Similar study done in Mon State of Myanmar state, the result of the study shows that 16% of the participants were found non-adherence to ART (Winlei et al, 2017).

Another study done in Batu Hospital, Eastern Ethiopia the finding shows that 85.6% of patients were adherent by self-report (Fitala, 2019).

A Cross-Sectional Study Harar town and Its Surroundings North-Eastern Ethiopia the result shows that the level of ART adherence in the study setting was 71.8 % (Tesfyaie, 2019).

Studies on ART adherence demonstrated that indicators and risk factors vary per region of the world, requiring context-specific development of non-adherence profiles. This will enable healthcare providers to provide appropriate care for patients at risk of non-adherence.

In addition, Mills et al did a meta-analysis that looked at the challenges and facilitators of ART adherence in 72 developed and 12 developing country settings (five African). Among the main barriers to ART, fear of disclosure, forgetfulness, health illiteracy, substance abuse, complicated regimens, and patients being away from their medications are common to PLHIV with poor adherence. Furthermore, financial restrictions, sex-related concerns, and stigma remained a barrier to ART access and adherence in poorer nations (Natasha, 2017).

According to the study that was conducted in Myanmar's Mon state, out of 16% of those reporting non-adherences, the most common causes for non-adherence were being too busy (23%), being away from home (17.7%), and being forgetful (16%). (12.3 percent). In multivariable logistic regression, low behavioral skills on ART adherence, tobacco use, having disclosed their HIV status, having a partner who was not on ART and among men, having erectile dysfunction were significant associated with ART non-adherence (Winlei et al, 2017).

In diverse social and cultural circumstances, non-adherence to ART is estimated to be between 50 and 80 percent in the presence of numerous hurdles impacting the taking of ART, such as economic, institutional, and cultural. For example, in Brazil, the cumulative incidence of non-adherence to ART is 36.9%, while in South Africa, it ranges from 10% to 37%. When it comes to Ethiopia, the rate of adherence to ART was determined to be 74.2 percent. The three primary reasons for non-adherence have been identified as forgetting to take the drug, changes in daily routine, and being away from home (UNAIDS, 2016).

A study done in Benishangul Gumuz Regional state the result shows that, non-adherent to ART. Was Strong association with the following factors, Young age below 25 years urban residential area lack of employment, food insecurity malnutrition and opportunistic infections (Fikad, 2019)

Similar study in sub Saharan Africa 11,283 records, 161 papers the result of the review shows that the most frequently identified barriers across studies were forgetting, lack of access to adequate food, stigma and discrimination side effects and being outside the house or travelling and the most frequently identified facilities across studies were social support, reminder feeling better or health after taking ART, disclosing HIV status and having a good relationship with a health provider (Natasha, 2016).

Another study done in Batu Hospital, Eastern Ethiopia the finding shows that The main reason of non-adherence cited by the patients were; being away from home for some social reasons being too busy with other things, simply forgot to take their ART, developed toxicity or side effects, having problems for fear of stigma and disclosure and of participants also shortage of ARV medications at hand because of some public holidays or weekends that coincide with date of appointments (Fitala, 2019).

A Cross-Sectional Study Harar Town and Its Surroundings North-Eastern Ethiopia the result shows that Participants who had not disclosed their HIV status to their family member were 88% less likely to stick to ART or adhere to their ARV drugs than those who had revealed their HIV status. On the other hand, participants who had not faced drug side effects were 2.69 times more likely to adhere to their ARV drug than those who had ever encountered drug side effects (Tesfaye A, Melse, 2019),

Similar study done on northern Tanzania the findings of the study show that Multivariable logistic regression model was used to determine the predictors of non-adherence. Of the 256 patients enrolled mean age was 44 years (SD  $\pm$  11) and median CD4 count was 499 cells per microliter (IQR 332–690). Median PDR adherence was 71% Non-adherence was associated with younger age and unemployment (Selebank, 2017).

According to a research conducted in Jimma zone government health institutions, 90.9 percent of the participants were satisfied with the health care personnel, during their visit, however, 17 percent did not believe the health care workers treating them were capable, 19.6% did not have open contact with them, and 5.1 percent did not receive the instruction or assistance they required. Furthermore, the results of the health care system and clinical settings revealed that 87.2 percent of people have access to a reliable pharmacy at any time, and 81.8 percent and 84.4 percent of people are satisfied with the improvements they get in terms of scheduling appointments and treatment unit confidentiality, respectively. At  $p < 0.05$ , the differences were statistically significant. 2016 (Aregash H, Yasmin M)

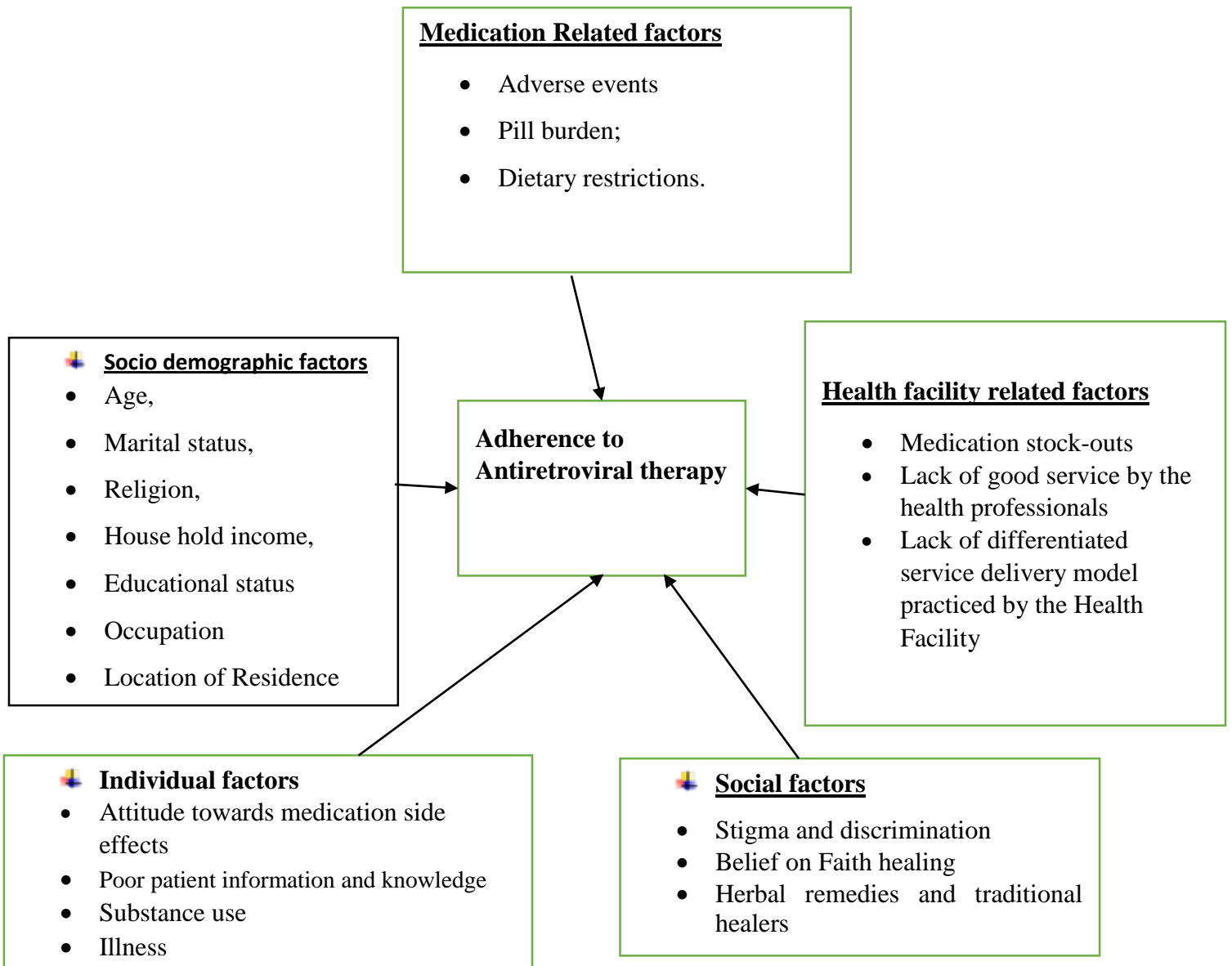
The reasons stated for non-adherence in the Addis Ababa study were being busy 33.9 percent, being away from home 27.5 percent, feeling tired (16 percent), feeling melancholy (4.6 percent), and stigma (4.6 percent). In the multivariate analysis controlling for the independent variable,

having regular follow-up, not being depressed, and having no side effects were linked factors of adherence, fitting a regimen into one's daily schedule, being satisfied with one's relationship with health care providers, and believing that doctors were competent and had access to dependable pharmacies (Y. ART 2005, Tadios)

Study conducted in North East Ethiopia shows that. Of the total 352 respondents 87.2 % were adherent to Anti-retroviral therapy. The study identified that factors associated to adherence to ART were marital status (AOR:4.4;95% CI:1.3-14.7), use of memory aids (AOR:6.5;95% CI:2.6-16.2) Living condition (AOR: 2.9;95% CI: 1.1-7.6), Experienced side effect (AOR: 4.6;95% CI;1.9-11.3),drug regimen (AOR: 5.5; 95% CI: 1.4-22.3) and distance in km (AOR:2.7;95% CI; 1.11-6.4) ( Almaz M., December, 2018).

## **2.4 Summary of the review**

In terms of ART, such different cognitive based psychosocial theories help to understand adherence behavior in detail. In this case adherence is not just a single ordinary concept but rather multidimensional. Furthermore, every patient has his or her own unique experience with ART and they face difficulties at large and it is a product of their individual, social, financial, cultural and health service component. Theoretical identified information about the individual behavioral factors and the Empirical literatures shows medication-related, Socio-demographic, behavioral factors, social factors and health facility related factors that influence the level of adherence to ART but evidence like level of service quality, the role of differentiated service delivery that help the individuals to choose the treatment approach is not clearly identified. So the aim this research was to assess all factors that influence adherence to ART among adult PLHIV in Saris, Kality and Akaki Health Centers.



*Conceptual frame work showing how factors associated with adherence to ART of adult people living with HIV/AIDS (Ayalu A and Sibhatu B, October 2011)*



## CHAPTER THREE: - RESEARCH DESIGN AND METHODOLOGY

### 3.1 Research Approach and Research design

A quantitative cross-sectional institution based study was conducted between the months of March to May, 2021.

### 3.2 Sampling techniques and sample size

A systematic random sampling methodology was selected to choose study subjects from all of the health centers that were selected. The systematic sampling technique is operationally more convenient than simple random sampling and it also ensures, at the same time that each unit has an equal probability of inclusion in the sample (Shalabh, IIT Kanpur 2002). Sample for each health center was divided proportionally based on the number of clients in their ART clinics who were on ART follow up during the study period.

**Target Population:** - All adult PLHIV on ART in the Health facilities found in Akaki Kality Sub-city, Addis Ababa Ethiopia

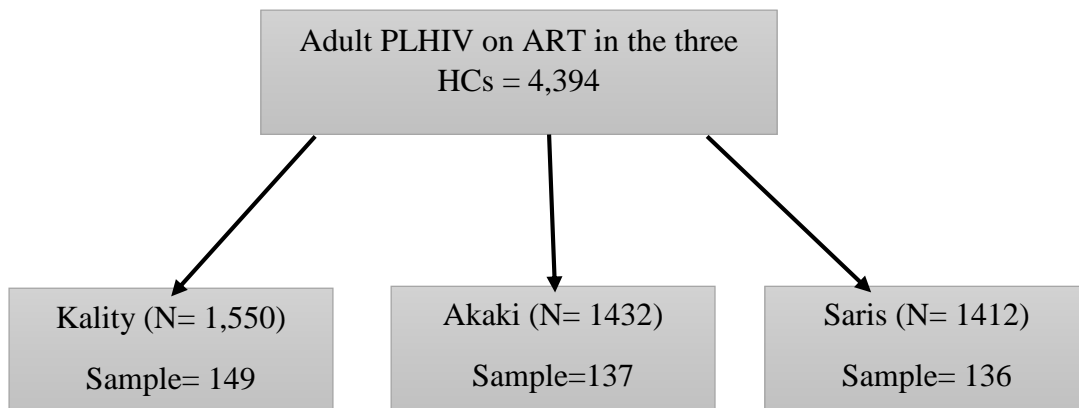
**Study Population:** - Adult people living with HIV (those aged at least 18 years, who gave informed consent and were free of neurocognitive impairments) and currently receiving anti-retroviral therapy in Saris, Kality and Akaki health centers.

**Sample size:**  $\frac{(Z\alpha/2)^2 p (1-p)}{d^2}$

$$n = \frac{(1.96)^2 \times 0.5\% \times 0.5\%}{(0.05)^2} = \frac{3.84 \times 0.5 \times 0.5}{0.0025} = \frac{0.96}{0.0025}$$

**n=384**, Additional 10 % for non-response rate=38

The final sample size to be used for the study is= **422**



### 3.3 Data collection techniques and procedure

Semi-structured and pre-tested questionnaires was used to collect data from study population ART adherent patients the questioner was first modified in English for this study before being translated into Amharic. HIV-positive patients on antiretroviral therapy (ART) who were observed in ART units at chosen health centers from March to May 2021 were invited and asked if they accepted to participate in a questionnaire-based interview for the study. Clients were solicited at the ART by their careers. Clients were recruited by their case managers at the ART unit and asked to contact the health care providers for the interview. Each health facility has two ART OPD (Antiretroviral therapy outpatient department) with one health care providers per OPD.

### 3.4 Variables description and measurement

#### Independent Variables

- **Socio demographic:** - Age, Marital status, religion, house hold income, Educational status and Occupation
- **Individual Factors (Behavioral & health status):**-mental status, alcoholism etc.
- **Social factors:**-stigma& discrimination and social support
- **Health facility factors:**-distance, availability of care, availability of differentiated service delivery, supplies, skill of health workers, conduct of skilled attendants and perceived quality of care are among factors included in the study.
- **Medication-related factors:** -may include adverse events; the complexity of dosing regimens; the pill burden; and dietary restrictions.

#### Dependent Variables

- Adherence to Antiretroviral therapy

### 3.5 Validity

It is the degree to which the results are truthful. So that it requires research instrument (questionnaire) to correctly measure the concepts under the study (Pallant 2011). Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested.

As stated above, questionnaire and interview was used to collect the primary data. Therefore, to assure validity of the instrument the researcher has given a chance for professionals on the area to review the questionnaire and it was finally validated by the advisor.

### **3.6 Reliability**

The reliability refers to a measurement that supplies consistent results with equal values [Blumberg et al., 2005]. It measures consistency, precision, repeatability, and trustworthiness of a research [Chakrabartty, 2013]. It indicates the extent to which it is without bias (error free), and hence insures consistent measurement cross time and across the various items in the instruments (the observed scores).

Based on the following rule of thumb of (George & Mallery, 2003, p. 231), if “ $\alpha > 0.9$  – ‘Excellent’,  $\alpha > 0.8$  – ‘Good’,  $\alpha > 0.7$  – ‘Acceptable’,  $\alpha > 0.6$  – ‘Questionable’,  $\alpha > 0.5$  – ‘Poor’, and  $\alpha < 0.5$  – ‘Unacceptable’.”

#### Reliability test result

- Cronbach's Alpha = .904
- No of Items = 35
- *Source: Adult People living with HIV in Akaki Kality and saris Health centers 2021*

As indicated in the above table, the Cronbach’s Alpha test implies that reliability test of the study is located on “excellent” range

### **3.7 Data analysis techniques**

Completed data collection tools will be double-checked by the trained supervisors and the principal investigators before data entry. Data will be double entered into Excel. The data will be exported to Stata for Windows version 14 for cleaning and analysis. The exported data will be cleaned by using computer facilities helpful in cleaning data. I prepare the data for analysis by recoding them as per the requirement for the analysis.

### **3.8 Ethical Considerations**

The ethical approval was secured from Addis Ababa Public Health Research and Emergency management Directorate. Regarding the study participants, a consent was taken and

confidentiality of the information was assured and privacy of the respondents has maintained by avoiding all identifiers and using codes to identify records at analysis.

### **3.9 Dissemination of results**

The findings from this study will be communicated with Akaki Kaliti Subcity, The selected Health centers and Addis Ababa Public Health research and Emergency management Directorate. For partial fulfillment of MA degree, it will be submitted St. Mary Graduate study school.

## CHAPTER FOUR

### 4. DATA PRESENTATION, ANALYSIS AND INTERPRETATION

Total of 422 clients were interviewed over telephone by case managers by using structured interview questionnaires of the survey after giving informed verbal consent. Telephoned based interview was done to avoid personal contact in order to minimize the risk of COVID-19 infection.

#### 4.1 Respondents profile

The Age of the respondents ranged from 18 to 64 years (with median of 37.83 and mean of 38 age), Eighty three percent of the respondents found in the age category of 25-49 years. Around twenty five percent (107) of the respondent are male while the remaining seventy four percent (315) are Females. Regarding Marital Status, forty nine percent (207) of the respondents are married followed by single (17.54%), Divorced (16.11%), Widowed (14.22%) and Separate (not legally divorced) constitutes for 3.08%.

In relation to participants' level of education, 207 (49.05%) of the respondents can read and write which followed by 74 (17.54%) illiterates, 68(16.11%) completed Primary School, 60(14.22%) completed secondary school and the remaining 13 (3.08%) are graduates.

With respect to respondents' occupational status, 126 (29.86%) of the respondents are have no job that generate income (unemployed) and dependent on the income of the family member(s), 98(23.22%) are employed, 86(20.38%) are house wife, 81(19.19%) are daily laborer, 27 (6.4%) are merchant and 4 (0.95%) are farmers. Looking at the religion of respondents', 226 (53.55%) are Orthodox, 150 (35.55%) are Protestant, 37 (8.77%) are Muslim and 9 (2.13%) are catholic religion followers. Regarding income of the respondents 92 (21.8%) earned monthly income of 500-1000 Birr, 138 (32.7%) of them have income of 1001-2000, 69 (16.35%) are earning 2001-3000, and 123 (29.15%) are earning more than three thousand Birr.

Majority (77%) of respondents' residence is within Addis Ababa city Administration and the remaining 23% of the respondents live out of the City.

Regarding family sizes of the respondents, 347 (82.23%) have three or more than three family member and the remaining 75 (17.77%) have less than three family members.

With regard to family members' HIV status, 374 (88.63%) respondent have one members with HIV positive status and the remaining 48 (11.37%) have two family members with HIV positive status.

Regarding the travel time of the respondents' from their residence to the health facility where they follow ART, majority of the respondents (269 clients or 63.74%) travel one to two hours, 88 of them spend less than an hour and the remaining 65 (15.4%) respondents spend more than two hours. With regard to travelling method 383 (90.8%) travel by using vehicle and the remaining 39 (9.2%) walk by foot to reach the health facility.

Table 1: Demographic Data of the respondents

Variable	Description	Frequency	Percentage (%)
Age	18-24	22	5.21
	25-49	354	83.89
	50+	46	10.9
	<b>Total</b>	<b>422</b>	<b>100</b>
Sex	Male	107	25.36
	Female	315	74.64
	<b>Total</b>	<b>422</b>	<b>100</b>
Marital Status	Single	74	17.54
	Married	207	49.05
	Divorced	68	16.11
	Widowed	60	14.22
	Separated	13	3.08
	<b>Total</b>	<b>422</b>	<b>100</b>
Educational Status	Illiterate	74	17.54
	Read and Write	207	49.05
	Primary school	68	16.11
	Secondary school	60	14.22
	Higher education	13	3.08
	<b>Total</b>	<b>422</b>	<b>100</b>
Occupation	Employed	98	23.22
	Unemployed	126	29.86
	House wife	86	20.38
	Merchant	27	6.4
	Day Laborer	81	19.19
	Farmer	4	0.95
	<b>Total</b>	<b>422</b>	<b>100</b>
Religion	Orthodox	226	53.55
	Muslim	37	8.77
	Protestants	150	35.55
	Catholic	9	2.13
	<b>Total</b>	<b>422</b>	<b>100</b>
Average Monthly Income (in Birr)	500-1000	92	21.8
	1001-2000	138	32.7
	2001-3000	69	16.35
	>3000	123	29.15
	<b>Total</b>	<b>422</b>	<b>100</b>
Average travel time to HFs (in hour)	< 1 hr	88	20.85
	1-2 hrs	269	63.74
	>2 hrs	65	15.4
	<b>Total</b>	<b>422</b>	<b>100</b>

## 4.2 practice of adherence to ART

### 4.2.1 Adherence level

To bring viral suppression (reducing the number of virus) in PLHIV, Adherence to retroviral therapy is very important. Regarding the adherence of the respondents, 128 (30.3%) have good adherence to ART or  $\leq 2$  missed drug doses of 30 doses, 129 (30.5%) is fairly adhered to the drug which means 85–94% adherence or 3–5 missed drug doses of 30 doses and 165 (39%) respondents were poorly adhered to the treatment or  $\geq 6$  doses of missed ART drug doses of 30 doses.

Table 2: Number of Missed doses in the last 30 days

Number of missed doses in last 30 days	Frequency	Percent	Cumulative Percent
1-2	128	30.3	30.5
3-5	129	30.5	61.0
$\geq 6$	165	39.0	100.0
<b>Total</b>	<b>422</b>	<b>100.0</b>	

### 4.2.2 Reasons of not taking the right dose as prescribed by the Health Care providers

As indicated in the below table, from the total respondents, 147 (34.83%) were missed their doses because of work overload, 144 (34.12%) of them because of forgetfulness, 85 (20.14%) missed their drug because of drug side effect and the remaining were failed to take their dose because of lack food, pill burden and dietary restrictions

Table 3: Reason for missed doses

Reasons	Frequency	Percent	Cumulative Percent
Forgetfulness	144	34.12	34.12
Work overload	147	34.83	68.96
Lack of food	32	7.58	76.54
Drug side effect	85	20.14	96.68
Pill burden	9	2.13	98.82
Dietary restrictions	5	1.18	100.00
<b>Total</b>	<b>422</b>	<b>100.0</b>	



### 4.3 Factors affecting adherence ART

#### 4.3.1 Medication related Factor

##### 4.3.1.1 Drug Side Effect

A class of drugs called Antiretroviral is the main treatment for HIV. ARV drug don't cure HIV, but they can minimize the amount of virus in the body people living with HIV. This helps the human immune system solid sufficient to fight off disease. Antiretroviral drugs have to be taken at the right time and in the right way for them to work effectively.

Sticking to a treatment as prescribed by health care providers is not always simple. Antiretroviral drugs can cause side effects that can be severe enough to make some people stop taking them. But if a person with HIV skips doses of these drugs, the virus can start copying itself in their body again. This could cause HIV to become resistant to the drugs. If that happens, the drug will no longer work, and that person will be left with fewer options to treat their HIV. Majority (271 or 64.2% of the respondents) of the study participants responded as there was drug side effect while the remaining 151 (35.78%) respondents didn't face drug side effect in the year 2019 and 2020.

Table 4: Side Effect due to ARV drug

Side Effect	Frequency	Percent (%)	Cumulative Percent (%)
Yes	271	64.22	64.2
No	151	35.78	100.0
<b>Total</b>	<b>422</b>	<b>100.00</b>	

##### 4.3.1.2 ART Duration of the Respondents

Majority of the respondents have taken the ARV drugs for one or more than one years. Out of the total respondents 216 (51.18%) have been taken ART for 1-5 years, 120 (28.44%) of them are on treatment for 6-10 years, 59 (28%) PLHIV are new to the treatment and stayed on treatment for less than a year

Table 5: Duration on ART

<b>Duration on ART</b>	<b>Frequency</b>	<b>Percent (%)</b>	<b>Cumulative Percent (%)</b>
Less than 12 month	59	13.98	13.98
1-5 Years	216	51.18	65.17
6-10 Years	120	28.44	93.60
Greater than 10 years	27	6.40	100.00
<b>Total</b>	<b>422</b>	<b>100.00</b>	

### 4.3.2 Health Facility Related Factors

#### 4.3.2.1 Clients Satisfaction

Ascertaining patient satisfaction has a vital role in assuring the adherence of PLHIV to antiretroviral therapy. The service expected by patients compared to the services offered by the health facilities determine the satisfaction level of the client. Among the respondents 244 (57.82%) were satisfied by the service provided by the health facilities while 178 (42.18%) of them were not satisfied.

Table 6: Client Satisfaction

<b>Client Satisfaction</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
yes, I was satisfied	244	57.82	57.8
No, I was not satisfied	178	42.18	100.0
<b>Total</b>	<b>422</b>	<b>100.00</b>	

#### 4.3.2.2 Reason for lack of satisfaction by the respondent

Out of 178 clients not satisfied by the services provided by the health facilities 85 (47.75%) of them had no good relationship with the health care providers, 49 (27.53%) mentioned lack of supplementary food as reason for not satisfied, 23 (12.92%) mentioned lack of differentiated services (alternative treatment approach such as community based ART refill/distribution and community based individual level ART refill) as the main reason for not satisfying by the HFs' services, 21 (11.8%) of them said lack of other necessary drug at the time dissatisfied them

Table 7: Reason for lack of satisfaction by the respondents

<b>Reason for lack of satisfaction by the respondent</b>	<b>Frequency</b>	<b>Percent</b>
Lack of differentiated Service delivery	23	12.92%
Lack of other necessary drug	21	11.80%
Lack of supplementary food	49	27.53%
Lack of good relationship with health care providers	85	47.75%
<b>Total</b>	<b>178</b>	<b>100.00%</b>

### 4.3.3 Social Factors

#### 4.3.3.1 Stigma and Discrimination

More than half of the respondent (247 respondents or 58.53%) face stigma by the community, very few clients were face stigma and discrimination by family members, health care providers, while 162(38.39%) of the respondent didn't face any stigma and discrimination

Table 8: Stigma and Discrimination

	<b>Frequency</b>	<b>Percent</b>
Never stigmatized & discriminated	162	38.39
Stigmatized & discriminated by Community	247	58.53
Stigma & discriminated by Family Members	6	1.42
Stigma& discriminated by Health Care providers	1	0.24
Stigma& discriminated by service providing Institutions	6	1.42
<b>Total</b>	<b>422</b>	<b>100.00</b>

#### 4.3.3.2 Social Support

More than half of the respondent (242 or 57.35%) didn't get any social support while the remaining 180 of the receive different social support from Government, from Associations, NGOs and from volunteer people

Table 9: Place where participants got Social Support

<b>Place where respondents got social support</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
From Government	16	3.79	3.79
From Associations	45	10.66	14.45
From NGO	91	21.56	36.02
From volunteer people	28	6.64	42.65
Never got any support	242	57.35	100.00
<b>Total</b>	<b>422</b>	<b>100.00</b>	

### 4.3.4 Individual Factors

#### 4.3.4.1 Disclosure of HIV Status

PLHIVs are expected to disclose their HIV status as HIV becomes more of a chronic disease and PLWHA live longer, disclosure of HIV status is encouraged as a way to reduce sexual risk behavior and transmission of the virus, decrease stigma associated with HIV, and increase access to support and care. From this study, 144 (34.12%) clients were not disclosed their status anybody which may result in lack of support from family member, Community, Organizations, Associations or government. Some Respondents (17.3%) were disclosed their status to their family, Friends or colleagues. There are also clients that were disclosed their result to NGOs and Associations

Table 10: Disclosure of HIV status

<b>To whom respondents disclose their result</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Family Members	22	5.21	5.21
Friends	40	9.48	14.69
Colleagues	11	2.61	17.30
Associations	77	18.25	35.55
NGOs	99	23.46	59.00
Public	29	6.87	65.88
Never disclosed	144	34.12	100.00
<b>Total</b>	<b>422</b>	<b>100.00</b>	

#### 4.3.4.2 Reason for missed appointment

With respect to the reason to miss the appointment date, 41.71% of the respondents missed their appointment because of work overload, followed by forgetfulness and sick on appointment date (37.44% and 13.03% respectively).

Table 11: Reason for missed appointment

<b>Reason of delaying from the appointment date</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Forgetfulness	158	37.44	37.44
Work overload	176	41.71	79.15
Transportation access problem	21	4.98	84.12
Lack of transportation fee	4	0.95	85.07
Didn't get permission from work place	8	1.90	86.97
Sick on appointment date	55	13.03	100.00
<b>Total</b>	<b>422</b>	<b>100.00</b>	

#### 4.3.4.4 Alcohol drinking Habit

With regard to the Alcohol drinking behavior of the respondents, 211 (50%) of the respondents drink alcohol some times while 204 (48%) have no drinking habit and the remaining 7 (2%) drink alcohol usually. Alcohol use can have adverse effects on the organ and behavior of a person living with HIV. Frequently drinking alcohol may result in weak immune system and damage the liver and also lead to risky behaviors that increase passing the virus on to others.

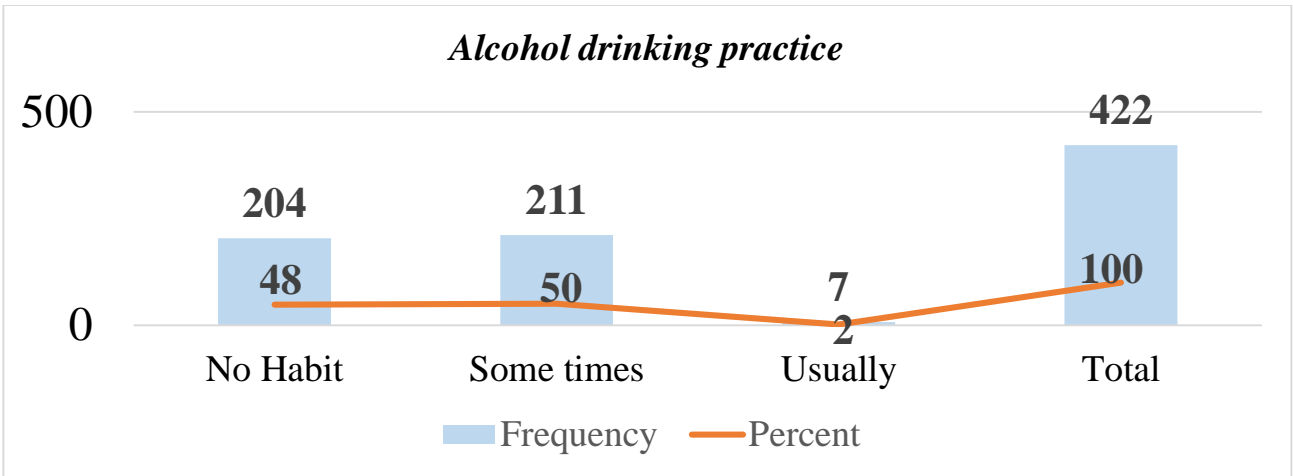


Figure 1: Alcohol drinking Habit of the respondents

#### 4.3.4.5 Habit of Smoking Cigarette

Majority 409 (96.92%) of the respondents were not smoking cigarettes, only 13 respondents have revealed as they smoke cigarettes.

Table 12: Habit of Smoking Cigarette

Smoking Habit	Frequency	Percent
Yes, I used to smoke Cigarette	13	3.08
No, Never smoke cigarette	409	96.92
<b>Total</b>	<b>422</b>	<b>100.00</b>

#### 4.3.4.6 History of opportunistic infections

Only 27.73 % of the respondents have faced opportunistic infection while majority of the respondents didn't face opportunistic infection in the last one year back to the study period.

Table 13: History of opportunistic infection

History of opportunistic infections	Frequency	Percent
Yes	117	27.73
No	305	72.27
<b>Total</b>	<b>422</b>	<b>100.00</b>

### **Determinants of Adherence to ART (using Multinomial logistic Regression)**

Using the multinomial regression, lack of expected service from HF ( $p=0.015$ ), Social Support ( $p= 0.044$ ) and smoking cigarette ( $p=0.002$ ) were identified as factors influencing adherence to ART. According to the respondents among the services they demand but got from the Health Centers were; lack of good relationship with health care providers, lack of other necessary drug, lack of supplementary food, lack of supplementary food and lack of good relationship with health care providers. With regard to social support, respondents who receive the social support were more likely adhered to ART than those who didn't gain the support. Among respondents those who smoke cigarette were less likely adhered to ARV drug.

## Multinomial Logistic Regression

### Likelihood Ratio Tests

Effect	Model	Fitting	Likelihood Ratio Tests		
	Criteria		Chi-Square	df	Sig.
	-2 Log Likelihood of Reduced Model				
Intercept	737.934 <sup>a</sup>		0.000	0	
Age	742.887		4.952	4	.292
Social support	753.849		15.915	8	.044
Alcohol use	739.597		1.662	4	.798
ART duration	746.839		8.904	6	.179
Smoke Cigarette	749.943		12.008	2	.002
Disclosure	752.871		14.937	12	.245
Educational status	743.811		5.877	8	.661
Number of family with HIV status	741.785		3.851	2	.146
Family Size	744.316		6.382	6	.382
HF distance	742.091		4.156	4	.385
HF service	738.256		.322	2	.851
income	749.480		11.546	6	.073
Marital status	745.437		7.503	8	.483
Occupational status	744.226		6.292	10	.790
Opportunistic infection	738.093		.158	2	.924
Religion	744.113		6.179	6	.403
Residence	739.024		1.089	2	.580
lack of expected service from HF	756.884		18.949	8	.015
Sex	746.668		8.734	2	.013
Drug side effect	740.655		2.721	2	.257
Stigma & Discrimination	742.445		4.511	8	.808
Means of Transportation	739.509		1.574	2	.455
Travel time	744.155		6.221	8	.623



## DISCUSSION OF THE RESULT

With regard to the age distribution of the respondents, 38 years was the mean age of participants which was lower than 44 years of the age of PLHIV participated in study conducted in northern Tanzania (Selemank, 2017). In addition to that 354 (83.84%) of the respondents were found in the age category of 25-49 years which indicate that much focus need to be given to improving or sustaining of their health status since they found productive age category.

This study identified that 39% of the respondents have good adherence and they comply with the globally accepted level of adherence to anti-retroviral therapy ( $\geq 95\%$  adherence or 1-2 missed doses in 30 days) so that they can prevent themselves from the development of drug resistant viral strains. The Adherence level of the respondents was lower than the study conducted in Benishangul Gumuz Regional state which was 60.3% (Fikad, 2019) and it was also much lower than the study conducted by the federal Ministry of health (FMOH) that found 72.4% of adherence level (MOH, 2017). Out of the respondents (422), 30.5 % of them were fairly adhered (missed 3-5 doses in 30 days) to ARV drug which need an improvement or should be raised to good adherence level to prevent the risk of viral replication. In this study, the participants that were poorly adhered (those who missed greater than or equal to six doses) were accounts for 39% which almost equivalent to the study conducted in Benishangul Gumuz Regional state that was 39.7% (Fikad, 2019).

Regarding drug side effect, 64.22% of the total participants had experienced drug side effect even if it was not related to the adherence of the PLHIV under study ( $P\text{-value} > 0.05$ ). However study in Hara town and its Surroundings found that participants who had never experienced medication side effects were 2.69 times more likely to adhere to their ARV drug than those who had side effect (Tesfaye A, Melse, 2019).

In relation to respondent' satisfaction by health facility service, 42.18% of the participants were not satisfied by the service provided by the health facility were they receive ARV drug. Among unsatisfied participants, 85 (47.75%) of them mentioned lack of good relationship with health care providers as the reason for not adhere to the drug. This study shows that different services patients lack from the health facility is directly associated with drug Adherence ( $P = 0.015$ ). The finding of the study conducted in Addis Ababa identified that effective physician-patient

communication has been found to improve health outcomes by boosting patient satisfaction and allowing patients to better understand their health problems and treatment options, when compared to those who had a bad relationship with their health care practitioner, those who had a good relationship were 3.15 times more likely to stick or adhere to ART (Mengistu Z, Chere A, 2012). Lack of Supplementary food and other necessary drug (27.53% and 11.8% respectively) were also raised as the cause to participants' dissatisfaction by health facilities' service. Out of 178 participants who were not satisfied by health facilities services, 23 (12.92%) of them were mentioned lack of differentiated service delivery (client centered alternative treatment approach) as the cause of dissatisfaction. In addition to conventional care, ART providing health facilities are implementing appointment spacing (Refilling ART drug for six month at time for stable clients) but this should not be the only the option as there a lot of community level treatment like Health worker managed and client managed community ART refill group that are on implementation globally. Community based differentiated service delivery model (CDSDM) was piloted in Ethiopia in 2018 and currently on scale up phase; health care providers need to offer and enroll PLHIV to different models accepted and launched by Ethiopian Federal Ministry of Health.

In this study, smoking cigarette was significantly associated with drug adherence ( $P=0.002$ ) which shows those who were smoking were less likely adhere to ART

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATION**

#### **5.1 SUMMARY**

The level of adherence to antiretroviral therapy of the study participants was measured based their self-report. The finding of the study shows that more than one-third of the respondents have poor adherence which may result in incomplete viral suppression, continued destruction of the immune system, disease progression, and emergence of viral resistance, need to change drug regimen, limited future to treatment and higher cost to the individual and the ARV program.

Poor of satisfaction of the services provided by health care provider due to the gap in lack of good relationship between health care providers and beneficiaries, Lack of supplementary food for those PLHIV that were screened as mal-nutrition measured through body mass index at the health facility level

The socio-demographics are not contributory factors for improving adherence of the PLHA. There is also no significant difference among the proportions of the two gendered groups – males and females. Thus, there is no statistical evidence indicating an association between the patients' involvement in ART to be adherence to the treatment and their demographics. While adherence is very high in this setting, not all patients manage to adhere to their medications. Three factors emerge that differentiated those who have achieved adequate adherence from those who do not achieve adequate adherence. Moreover, the evidence generated highlights the importance of social support in facilitating good adherence, those PLHIV who received Social support which aim to address their identified gaps has good adherence to ART

Smoking cigarette was identified as one of the determinants of adherence to antiretroviral therapy. The person who smoke cigarette likely had poor adherence to ART because of stress, anxiety and feeling of bad mood

## **5.2 CONCLUSION**

Adherence to antiretroviral treatment (ART) is essential for clinical success among people living with HIV/AIDS (or HIV-infected people). The objective of this study was to assess ART adherence among people living with HIV/AIDS (PLHA) who were attending ART at Saris, Kality and Akaki Health centers. Specifically, it aimed to assess the current adherence status of PLHA to ART at health centers in Addis Ababa, to identify factors contributing to ART adherence; to investigate reasons for the patients missed ARV drug doses

This study shows there was significant association of adherence and lack of different services provided by health facilities such as lack of good relationship between health care providers, lack of supplementary food, lack of other necessary drug and lack of differentiated service delivery model. In addition, social support is directly related to clients' adherence status, those who got support were adhered to ART. Smoking cigarette was also directly associated with adherence to ART, those who were smoke cigarette were less likely adhere to ART.

### **5. 3 RECOMMENDATION**

- High attention has to be given to the service quality provided to the beneficiaries by routinely measuring their satisfaction level. This could be done by collecting clients satisfaction level through suggestion box or exit interview, summarizing the complaints and developing quality management/quality improvement plan
- Social support to people living with HIV based on clients need is important in improving their adherence to ART.
- Intensive counselling has to be provided to PLHIV who are smoking cigarettes to avoid the impact it brought on clients health.

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## Appendix

### Questionnaire

Questionnaire for the Prevalence and associated factors of non- adherence to antiretroviral therapy among adult patients in receiving ART in the Health Facilities found in Akaki Kality Sub-city, Addis Ababa, Ethiopia

- i. Code of the interviewee \_\_\_\_\_ Woreda: \_\_\_\_\_ Ketena \_\_\_\_\_
- ii. Date of interview: \_\_\_\_\_
- iii. Name of Interviewer: \_\_\_\_\_ Signature \_\_\_\_\_
- iv. Name of supervisor: \_\_\_\_\_ Signature \_\_\_\_\_

Socio economic factors					
S.N	Question	Coding categories			Skip
101	Age of the respondent				
102	Sex of Respondent	Female	1		
		Male	2		
103	Marital status	Single	1		
		Married	2		
		Divorced	3		
		Widowed	4		
		Separated(legally not confirmed)	5		
104	Educational status of the respondents	Illiterate	1		
		Read and Write	2		
		Primary school	3		
		Secondary school	4		
		Higher education	5		
105	Occupational status	Employee	1		
		Un employed	2		
		House wife	3		
		Merchant	4		
		Day Laborer	5		
		Student	6		
		farmer	7		
		Other	8		
106	Religion of the respondents	Orthodox	1		
		Muslim	2		
		protestants	3		
		Catholic	4		
		Others			

107	Average monthly family income (in Birr)				
108	Residence of the respondents	Within Addis Ababa	1		
		Out of Addis Ababa	2		
109	How many family members were living in your house?				
110	Is there any other family member infected by HIV?	yes	1		
		No	2		
111	If yes the, who is your family member infected?				<i>Specify</i>
112	Is the Health Facility (HF) where you receive ART is far from your home?	Yes	1		
		No	2		
113	How much time is taking to travel to HF?	Specify			
114	What are the means of transportation to go to Health Facility?	By foot	1		
		On vehicle	2		
		Other	3		
<b>Medication related Factor</b>					
201	Had you face any side effects related to the drug?	Yes	1		
		No	2		
		No	2		
202	How long of duration of ART initiation?	Less than 12 months	1		
		1-5 years	2		
		5-10 years	3		
		>10 years	4		
<b>Health Facility Related Factors</b>					
301	Did you had gotten good service at HF as you had expected on the appointment date?	Yes	1		
		No	2		
302	If no to the above question, what type of service did you lack from HF?	Lack of differentiated Service delivery	1		
		Lack of other necessary drug	2		

		Lack of supplementary food	3		
		Lack of good relationship with health care providers	4		
<b>Social Factors</b>					
301	Had you been faced any stigma and discrimination?	Yes	1		
		No.	2		
302	If yes to the above question by whom you had been faced stigma and discrimination?	Community	1		
		Health professionals	2		
		By Family Members	3		
		Others	4		
303	Did you had social support in the last one year?	Yes	1		
		No	2		
304	If yes to the above question from where did you get the support	From Gov't	1		
		From Associations	2		
		From NGO	3		
		From volunteer people	4		
		Other	5		
<b>Individual Factors (Behavioral and Health Status)</b>					
501	Did you disclosed your HIV status to your family member(s)?	Yes	<b>1</b>		
		No	<b>2</b>		
502	If yes to above question, to whom you disclosed?				<i>Specify</i>
503	Had you been going to health facility on your appointment date to collect your ARV drug?	Yes	1		
		No	2		
504	If No to the above question, what was the reason	Forgetfulness	1		
		Work overload	2		
		Transportation access problem	3		
		Lack of transportation fee	4		
		Didn't got permission from work place	5		

		Sick on appointment date	6		
		Other (specify)	7		
505	Did you took your ARV drug timely as prescribed by ART provider	Yes	1		
		No	2		
506	If No to the above question, what was the reason for not taking medication as prescribed by ART provider?	Forgetfulness	1		
		Work overload	2		
		Lack of food	3		
		Drug side effect	4		
		Complexity of dosing regimens	5		
		Pill burden	6		
		Dietary restrictions	7		
		Other	8		
507	Did you have habit of drinking Alcohol?	Not at all	1		
		Sometimes	2		
		Usually	2		
508	Had you been chew chat or smoke cigarette?	Yes	1		
		No	2		
509	Had you face any history of opportunistic infections in the last two years?	Yes	1		
		No	2		
510	Had you missed your pill in the last 30 days?	Yes	1		
		No	2		
511	If yes to the above question, how many doses did you miss in the last 30 days	----- -----			

**Thank You**

**በአማርኛ ቋንቋ የተዘጋጀ መጠይቅ**

በአዲስ አበባ ከተማ፣ አቃቂ ቃሊቲ ክፍለ ከተማ ውስጥ በሚገኙ የጤና ተቋማት ውስጥ የፀረ ኤች.አይ.ቪ መድኃኒት በሚወሰዱ አዋቂ ሕሙማን መካከል የፀረ ኤች አይ ቪ ሕክምና ቁርኝት ችግር የነበረባቸው ሰዎች ብዛት እና ተያያዥ ምክንያቶችን ለማጥናት የተዘጋጀ መጠይቅ.

ወረዳ: \_\_\_\_\_ ቀበሌ: \_\_\_\_\_ ቀጠና \_\_\_\_\_

የቤት ቁጥር: \_\_\_\_\_ ቃለመጠየቅ የተደረገበት ቀን: \_\_\_\_\_

1. ማህበራዊ እና ኢኮኖሚያዊ ምክንያቶች			
ተ.ቁ	ጥያቄ	ኮድ	አስተያየት
101	እድሜ	..... ዓመት	
102	ጾታ	ሴት	1
		ወንድ	2
103	የጋብቻ ሁኔታ	ያላገባ/ች	1
		ያገባ/ች	2
		የፈታኝ/ታ	3
		የሞተባት/የሞተችበት	4
		ተለያይተው የሚኖሩ	5
		ሌላ ካለ ይጠቀስ	6
104	የትምህርት ደረጃ	ያልተማረ/ች	1
		ማንበብና መጻፍ	2
		የመጀመሪያ ደረጃ	3
		ሁለተኛ ደረጃ	4
		ኮልጅና ከዛ ብላይ	5
105	የሥራ ሁኔታ	ተቀጣሪ	1
		ሥራ አጥ	2
		የቤት እመቤት	3
		ኑጋዴ	4
		የቀን ሰራተኛ	5
		ተማሪ	6
		ገበሬ	7
		ሌላ ካለ ይጠቀስ	8
106		አርቶዶክስ	1
		ሙስሊም	2
		ፕሮቴስታንት	3

	ሀይማኖት	ካቶሊክ	4	
		ሌላ ካለ ይጠቀስ	5	
107	ወርሃዊ ገቢ በብር	.....		
108	መኖሪያ ከተማ	አዲስ አበባ	1	
		ከአዲስ አበባ ዉጪ	2	
109	በቤቱ ውስጥ ስንት ቤተሰቦች አሉ?			
110	በቤተሰብ ውስጥ ሌላ ኤች.አይ.ቪ. የተያዘ ሰው አለ?	አዎ	1	
		የለም	2	
111	ከላይ ላለው ጥያቄ መልሱ አዎ ከሆነ ከተሰብዎ ስንት ሰው ነው በኤች.አይ.ቪ. የተያዘው?			
112	መድኃኒት የሚወስዱበት ጤና ተቋም ከቤት ይርቃል?	አዎ	1	
		አይ	2	
113	መድኃኒት የሚወስዱበት የጤና ተቋም ለመድረስ ምን ያክል ጊዜ የወስድቦታል (በደቂቃ)			
114	አብዛኛውን ጊዜ ወደ ጤና ተቋም ለመሄድ የሚጠቀሙት የትራንስፖርት ዓይነት ይግለጹ	በእግር ጉዞ	1	
		በተሽከርካሪ	2	
		በሌላ	3	
2	ከመድኃኒት ጋር ተያያዥነት ያላቸው መነስኤዎች			
201	ከመድኃኒቱ ጋር የሚዛመዱ የጎንዮሽ ጉዳቶች ነበርዎት?	አዎ	1	
		አይ	2	
		የለም	2	
202		ከ12 ወራት በታች	1	
		ከ1-5 ዓመት	2	

	የፀረ ኤች.አይ.ቪ መድኃኒት ከጀመሩ ምን ያክል ጊዜ ነው?	ከ5-10 ዓመት	3	
		ከ10 ዓመት በላይ	4	
<b>3</b>	<b>ማህበራዊ ምክንያቶቶቹ</b>			
301	መገለል እና አድልዎ አጋጥሞቻት ነበር?	አዎ የለም		
302	ከላይ ለተጠቀሰው ጥያቄ መልስዎ አዎ ከሆነ፣ አድሎና ማገለል የደረሰብዎ በማን ነበር?	በማህበረሰቡ በጤና ባለሙያዎች በቤተሰብ አባላት ሌላ		
303	በለፉት 1 ዓመት የማህበራዊ ድጋፍ አግኝተው ነበር?	አዎ አይደለም	1 2	
304	ከላይ ለተጠየቀው ጥያቄ መልሱ አዎ ከሆነ፣ ከየት ነበር ድጋፉ የተሰጠዎ?	ከመንግስታዊ ተቋም ከመንግስታዊ ያልሆነ ተቋም ከማህበር/ማህበራት ከበጎ ፈቃደኞች ሰዎች ሌላ ካለ ይጠቀስ	1 2 3 4 5	
<b>4</b>	<b>ከጤና ተቋማት ጋር የተያያዙ ምክንያቶች</b>			
401	ከጤና ተቋም ጥሩ አገልግሎት አግኝተው ነበር?	አዎ አይ	1 2	
402	መልሱ አይ ከሆነ ምን አይነት አገልግሎት/ሎችን ሳያገኙ ቀሩ?	የማህበረሰብ አቀፍ ህክምና አገልግሎት አለመኖር ለሎች አስፈላጊ መድሃኒቶች አለመኖር አልሚ ምግቦች አለመኖር የጤና ባለሙያዎች አያያዝ ጥሩ ያለመሆን	1 2 3 4	
403	አድሎና መገለል ደርሶብት ነበር	አዎ አይ	1 2	
404	ከላይ ላለው ጥያቄ መልሱ አዎ ከሆነ፣ በማን ነበር አድሎና መገለል የደረሰብዎ?	በማህበረሰብ በጤና ባለሙያ/ዎች በቤተሰብ አባል/ላት ሌላ ካለ ይጠቀስ ከተለያዩ ማህበራት መንግስታዊ ካልሆነ ድርጅት	1 2 3 4 2 3	



		በጎ አድራጊ ግለሰቦች	4	
		ሌላ	5	
5	የግለሰብ ምክንያቶች(የባህሪ፣ የጤና ሁኔታ)			
501	የኤች.አይ.ቪ ወጤትዎን ለቤተሰብዎ አባል ግልፅ አደርገዋል?	አዎ	1	
		አይ	2	
502	መልሱ አዎ ከሆነ፣ ውጤትዎን ለማነውይፋ ያደረጉት?			
503	ባለፉት አንድ አመት በቀጠርዎ ቀን መድኃኒት ለመውወድ ጤና ተቋም ይሄዱ ነበር?	አዎ	1	
		አይ	2	
504	መልስዎ አይ ከሆነ በቀጠርዎ ቀን ያልሄዱበት ምክንያት ምን ነበር	ስለረሳሁ	1	
		ስራ ስለበዛብኝ	2	
		የትራንስፖርት ችግር	3	
		የትራንስፖርት የሚሆን ገንዘብ ስላልነበረኝ	4	
		ከስራ ቦታ ፈቃድ ስላላገኘው	5	
505	የፀረ.ኤች.አይ.ቪ መድኃኒት በጤና ባለሙያ በተዘዘው መሰረት ዘወተር ይውጡ ነበር?	አዎ	1	
		የለም	2	
506	ከላይ ለተጠቀሰው ጥያቄ መልሱ አይ ከሆነ፣ መድሃኒቱን በትክክል ያልወሰዱበት ምክንያት ምን ነበር?	የመርሳት ችግር	1	
		ስራ ስለሚበዛብኝ	2	
		የምግብ እጥረት ስለነበረብኝ	3	
		የመድኃኒት የጎንዮሽ ጉዳት ስለነበረ	4	
		የመድኃኒቶች መድሃኒቶች መብዛት	5	
		ሌላ ካለ ይጥቀሱ	6	
507	መጠጥ/አልኮል ይጠጣሉ?	አይ	1	
		አልፎ አልፎ	2	
		ዘወተር	3	

508	ሲጋራ ያጨሳሉ?	አዎ	1	
		አይ	2	
509	በለፈው አነድ አመት ውስጥ በተገዳኝ በሽታ ተመው ያውቃሉ?	አዎ	1	
		አይ	2	
510	ባለፈው ወር መድኃኒትዎን ሳይውጡ ቀርተው ያውቃሉ?	አዎ	1	
		አይ	2	
511	መልሰዎ ከሆነ ምን ያክል እንክብል ሳይወስዱ ቀሩ?	----- -----		

ቃለ-መጠየቁን ጨርሻለሁ። አመሰግናለሁ!

- ቃለ-መጠየቁን ያደረገው ሰው ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_  
የተቆጣጣሪ ስም \_\_\_\_\_ ፊርማ \_\_\_\_\_