

# **THE UNIVERSITY OF ZAMBIA**

**SCHOOL OF MEDICINE**

**DEPARTMENT OF NURSING SCIENCES**

**A STUDY TO DETERMINE FACTORS THAT INFLUENCE NON  
ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV  
POSITIVE CLIENTS**

**BY**

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**LIST OF ABBREVIATIONS**

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARV	Antiretrovirals
CD4	T-lymphocyte bearing CD4+ receptor
CHAN	Catholic HIV/AIDS Network
CIRDZ	Centre for Infectious Diseases in Zambia
EDM	Electronic Drug Monitoring
HAART	Highly Active Antiretroviral Therapy
HIV	Human Immune Virus
MEM	Microelectronic Monitoring System
MOH	Ministry of Health
NAC	National AIDS Council
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UNAIDS	Joint United Nations Programme on HIV and AIDS
USAID	United States Agency for International Development
UTH	University Teaching Hospital

WHO

World Health Organization

ZDHS

Zambia Demographic Health Survey

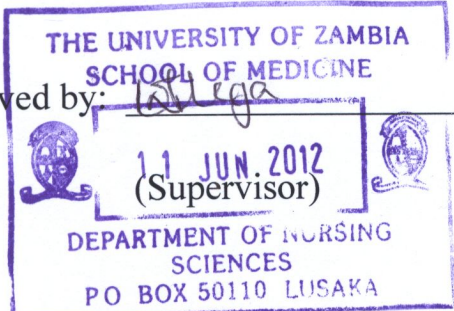


DECLARATION

I, Mirriam Hangoma, hereby declare that the work presented in this study for the Bachelor of Science degree in Nursing has not been presented either wholly or in part, for any other degree and is not being currently submitted for any other degree.

Signed: Mirriam Hangoma  
(Candidate)

Date: 08.06.12

Approved by: B. G. 12  
A rectangular purple stamp from The University of Zambia School of Medicine. It contains the text: 'THE UNIVERSITY OF ZAMBIA', 'SCHOOL OF MEDICINE', '11 JUN. 2012 (Supervisor)', 'DEPARTMENT OF NURSING SCIENCES', and 'PO BOX 50110 LUSAKA'. There are two circular emblems on either side of the date.

Date: B. G. 12

STATEMENT

I Mirriam Hangoma hereby, certify that this study is entirely the result of my own independent investigations. The various sources to which I am indebted are clearly indicated in the text and references.

Signed: Mirriam Hangoma

Date: 08.06.12

(Candidate)

# DEDICATION

This research is dedicated to my children, Moonga, Nchimunya and Choolwe. My nieces Martha and Hilda. My sisters and my brothers who have offered me the support and encouragement that I needed.

## ABSTRACT

Despite the need for HIV clients to adhere to ART, some clients find it a challenge to adhere to the treatment regimen. Non-adherence to ART is implicated in the development of antiretroviral-resistant virus, emergency of opportunistic infections, increased potential for regimen failure, compromised future treatment options and increased risk of mortality. The purpose of this study was to determine the factors that influence non adherence to ART among HIV positive clients at Chikankata Mission hospital ART clinic. The objectives of the study were to determine the patient's knowledge and attitude on the use of ART, to explore the clients knowledge on the effects of non adherence to ART drugs and to assess how often adherence counseling was given to HIV positive clients. The study intended to verify the outcome of the hypotheses which stipulated that when the level of education increases, adherence to ART also increased and when inadequate health education was given to clients concerning adherence to treatment, non adherence rate were expected to increase.

A descriptive non experimental design study was conducted from October to November, 2011 on HIV positive clients who were not adhering to ART. A non probability sampling (convenient sampling) method was use to select a total number of fifty (50) HIV positive clients. Data was collected using a structured interview.

The results revealed that 26% of the respondents had high knowledge while 74% had medium knowledge. To ensure that clients acquire adequate knowledge there was need for the staff at the ART clinic to give clients information on HIV each time they visited the ART clinic. The study showed that majority of the respondents 56% had low economic status, 24% had medium status and 20% had high economic status. This contributed to the difficulties experienced by respondents in attending regular scheduled clinic visits, considering that most of them resided far from the health centre. The rain season too exerted its own impact, in that the roads become impassible due to flooding. Therefore, it became inevitable that some clients had to miss their scheduled clinic visits. The study further revealed that 68% of the clients were not counseled at each visit. It is therefore important that adequate time is set aside for counseling so that appropriate and informed decision on therapy and its implications are made by the patient (WHO, 2000). Majority of the respondents (96%) had a positive attitude towards ART and 88% of them had family support.

In view of the above findings the investigator, made the following recommendations:

There is need to strengthen adherence counseling as a way of reminding them to adhere to their treatment. The trainee nurses in various Schools of Nursing should be trained in management of HIV clients covering all major topics in HIV, so that they are able to deliver this service to those who are in need. It is anticipated that the findings gathered from this study will contribute to knowledge and understanding the consequences of non-adherence to ARVs and be useful in developing interventions that will be undertaken to address ARV adherence. Data collected in this study will assist health planners like Ministry of health to come up with better programmes to deal with problems associated with non-adherence.

# 1.0 INTRODUCTION

## 1.1 BACKGROUND

A key challenge in Human Immunodeficiency Virus (HIV) clinical management is facilitating antiretroviral therapy (ART) adherence. ARV treatment can allow ones immune system to improve so that illness is reduced and health and quality of life can be regained. Very high levels of patient adherence, at least, greater than 95%, are required for ARVs to be effective and to prevent the emergence of resistant viral strains and is associated with controlling HIV replication, which allows an optimal therapeutic response to the medications. This means missing not more than three doses a month for a twice daily regime, and maintaining that level of adherence year after year. Failure to adhere to ART regimens results in incomplete suppression of HIV replication and emergence of resistance to ARVs.

Adherence is the extent to which a patient takes a medication in the way intended by a health care provider. It involves entering into and continuing with a program or care plan. It includes going for appointments and tests as scheduled, taking medications as prescribed, modifying lifestyles as needed, and avoiding risk behaviors (Zuurmond, 2008).

Despite the need for HIV clients to adhere to ART, some clients find it a challenge to adhere to the treatment regimen. Non adherence to ART may increase the potential for regimen failure, compromised future treatment options and lead to increased risk of mortality.

### Effects of non adherence to ART

Non-adherence to ART is implicated in the development of antiretroviral-resistant virus and emergency of opportunistic infections. Drug resistance occurs as a result of changes, or mutations, in HIV's genetic structure. HIV's genetic structure is in the form of RNA, a tight strand of proteins and enzymes needed by the virus to infect cells and produce new virus. HIV reproduces at an extremely rapid rate and does not contain the proteins needed to correct the mistakes it makes during copying. Two of the most important HIV enzymes are reverse transcriptase and protease. Nucleoside analogues, also called Nucleoside Reverse Transcriptase Inhibitors (NRTIs) and Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) target the reverse transcriptase enzyme. Protease Inhibitors (PIs) target the protease enzyme. Another important protein is gp120, which is found on the outer coat, the envelope, of HIV (Nairn et al,2007). In order for these anti-HIV drugs to be effective, they must first attach themselves to the necessary enzyme. Certain mutations can

prevent a drug from binding with the enzyme and, as a result, make the drug less effective against the virus (Venter, 2009). HIV drug-resistance mutations can occur both before and during ART treatment. Mutations that occur before the commencement of ART is started can happen in two ways, that is, natural selection and transmission of drug-resistant virus.

## **MUTATIONS OCCURING BEFORE THE COMMENCEMENT OF ART**

### **i. Natural Selection**

Chikoki, (2007) stated that as soon as the HIV virus enters the body, it begins to reproduce at a rapid rate (approximately 10 billion new viruses are produced every day). In the process, HIV produces both perfect copies of itself (wild-type virus) and copies containing errors (mutated virus). The body does not carry just one type of virus, but carries a large population of mixed viruses called quasi-species. When HIV reproduces, the desired type of virus is the wild-type virus. This is the most natural and powerful form of the virus and, as a result, reproduces the best. Before ART is started, wild-type virus is the most abundant in the body and dominates all other quasi-species. When HIV makes mistakes during copying, mutated viruses called variants are produced. Some variants are too weak to survive and/or cannot reproduce. Other variants are strong enough to reproduce but are still not able to compete with the wild-type virus. In turn, their numbers are less than wild-type virus in the body. Some variants have mutations (sometimes called polymorphisms) that allow the virus to partly, or even fully, resist to ART drugs. This is why HIV-positive people should never take just one ART drug (monotherapy). A variant may be resistant to one of the drugs but does not stand much of a chance when facing two other drugs that bind to different parts of the same enzyme or different parts of the virus (Horn et al, 2000).

### **ii. Transmission of Drug-Resistant Virus**

Many HIV-positive people are now taking ARVs. If someone has developed resistance to one or more of these ARVs and has unprotected sex or shares needles with someone who is not infected with the virus, it is possible that they can infect their partner with a drug-resistant variant, a strain of HIV containing mutations that cause resistance to one or more anti-HIV drugs.

## MUTATIONS OCCURRING DURING ART

According to Chikoki (2007), soon after the commencement of ART, the viral load in the body is reduced dramatically. Unfortunately, no ART drug or combination of drugs is able to completely stop HIV from reproducing. There is always a small population of the virus in the body that continues reproducing, despite the presence of ART drugs. In the presence of ART drugs, variants become the dominant strain of HIV, (even though there is a much smaller amount of HIV) in the body. Over time, variants accumulate additional mutations. Some of these mutations will harm the virus while others will further limit a drug's ability to stop it from reproducing. Once the virus has accumulated enough mutations, the ART drugs lose their ability to bind to it and prevent it from reproducing. As the drugs become weaker, the amount of drug-resistant virus in the body increases, causing an undetectable viral load to become detectable again and increase over time. When the drug-resistant virus continues to reproduce, it acquires even more mutations to resist the ART drugs completely.

Cross-resistance can also occur during therapy. When HIV becomes resistant to one drug, it can automatically become resistant to other drugs in the same class (Chikoki, 2007).

As of 2008, approximately 4 million people in low and middle income countries were receiving ART- a 10 fold increase over 5 years (WHO 2009). Near-perfect adherence to ART is needed to keep the correct amount of the drugs in the body to fight the virus. With optimal adherence, ART can suppress the viral load to undetectable levels, boost the immune system by increasing the number of CD-4 cells, and improve the quality of life for People Living with HIV/ADS (Lewis et al 2006; Rao et al 2007). However, the virus is never completely eliminated from the body. Non-adherence can lead to inadequate halting of the multiplication of the virus, continued damage to the immune system, progression of HIV to AIDS, and the development of drug resistance to ART medications (Family Health International 2007). Also Lewis et al 2006, observed the significance of adherence that a non-adherent patient is 3.8 times more likely to die.

If there is poor adherence then there is a higher risk that drug resistance will develop, which will result in the need for second line drug treatment. If people living with HIV require second-line treatment, it can be ten times more expensive than first line drugs. The long term implications for



the sustainability of ART in resource poor countries are considerable, as WHO 2006 states, “Drug resistance may result in the failure of the immense global and national efforts to provide hope to people living with HIV”. When doses are repeatedly missed, drug levels become sub therapeutic. This leads to incomplete viral suppression and the generation of HIV resistant strains. Not only is the patient at risk of failing their current regimen, they are at risk of developing resistance that may reduce the effectiveness of future regimens. (CHAN 2008)

## **FORMS OF NON ADHERENCE TO ART**

**I-TECH, 2008 classified non adherence as follows:**

- **Consistent Underdoser** - this is where the client regularly neglects to take one of the prescribed doses, such as the midday dose and regularly takes only some of the prescribed medications
- **Consistent Overdose** – the client. Regularly takes a drug more often or in larger doses than is prescribed
- **Random doser** – the client takes the medications when she or he thinks of it
- **Abrupt overdoser** – the client does not take medications properly and then takes an overdose prior to a clinic visit doubles up for missed doses
- **Tourist** (takes “drug holidays”) the client abruptly stops all medications for a few days or weeks or takes one day off per week (HIV/ART 10).

When a client does not adherence to ART, resistance develops. When doses are repeatedly missed, drug levels become sub therapeutic. This leads to incomplete viral suppression and the generation of HIV resistant strains. Not only will the patient be at risk of failing their current regime but also, they are at risk of developing resistance that may reduce the effectiveness of future regimens.

## 1.2 STATEMENT OF THE PROBLEM

In order to achieve optimal and effective treatment and be able to value the benefits of treatment, strict adherence to ART treatment instructions is very important. According to WHO (2004) sticking to the treatment instructions for a long-term illness poses a great challenge to the patients. Just having medicine available cannot solve the HIV and AIDS problems. Worldwide, non adherence to ART is common in all groups of treated individuals. The average rate of adherence varies by the method used to assess it and the group being studied, but appears to be approximately 70% (Edward and David 2006)

Despite the need for HIV clients to adhere to ART, some clients find it a challenge to adhere to the treatment regimen. Very high levels of patient adherence, at least, greater than 95%, are required for ARVs to be effective and to prevent the emergence of resistant viral strains and is associated with controlling HIV replication, which allows an optimal therapeutic response to the medications. This means missing not more than three doses a month for a twice daily regime, and maintaining that level of adherence year after year. Failure to adhere to ART regimens results in incomplete suppression of HIV replication and emergence of resistance to ARVs.

According to studies on HIV positive clients conducted in the United States, suboptimal rates of adherence range from 53% to 89% based on self reports, pill count or Microelectronic Monitoring System (MEMS). In Canada and other developed countries in Latin America and Europe demonstrated similar rate of suboptimal adherence of 10%. Patients are reported having missed at least one antiretroviral dose on any given day and 33% were reported missing at least one dose within the past month. Rates of adherence also are known to decline over time. It can be concluded that most patients taking ART, regardless of their background or life situation, will encounter difficulties with adherence (Edward and David 2006)

In Cameroon 12.8% of the people on ART were reported having interrupted their treatments for more than two days in the previous 4 weeks and 12% reported at least one interruption for more than one month since ART initiation. Kiguba *et al.* (2007) reported that, in Uganda, 13.7% of People Living with HIV/AIDS receiving HAART discontinued their therapy completely for a period of at least one month since ART initiation.

Antiretroviral therapy monitoring data from Khartoum state in Sudan show that there is a high drop out rate (50%) of those on ART which is attributed to lack of adherence and support from families due to fear of stigma and discrimination if HIV status is disclosed and inadequate adherence preparation (patients being started on treatment too quickly) (WHO, 2008). In Somalia, according to a cohort analysis conducted on ART monitoring, data shows that overall 76% of PLHIV initiated on ART were still alive and on treatment after one year.

As HIV/AIDS rates continue to rise in developing countries, it is becoming increasingly necessary to scale up access to highly active antiretroviral therapy (HAART), especially in Africa where 95% of all new HIV infections occur. However, in resource-constrained settings where health care services are not well developed, poor adherence to treatment and defaulting from treatment are major challenges faced by ART programmes as stated by Kebede *et al.* (2008).

Mills (2006) stated that non-adherence to ART in the adult population in resource constrained setting, has been shown to range from 33 to 88% depending on how adherence is defined and evaluated.

Byakika (2005) reported that there are inadequate studies on ART adherence in resource poor settings such as sub Saharan Africa. Therefore, the expected patient adherence rates commonly used are derived from studies performed in resource-rich countries. This is attributed, in part, to the fact that much of the effort in the South of sub Saharan Africa has been devoted to providing access to those in need, rather than concerted efforts to study adherence rates. However, given recent roll-out initiatives, the challenge is changing from gaining access to maintaining adherence in order to realise the full benefits of reduced HIV- related mortality and morbidity, as well as improved quality of life (Sarna et al 2005). With this realisation, studies have been conducted in South Africa, Botswana and Uganda to determine the adherence levels. These studies show varying rates of adherence depending on the time and place studied. One of the pioneer studies conducted by Weiser et al (2003) in Botswana found self reported and provider assessment adherence rates of 54% to 56%.

In another study done in Dakar, Senegal by Laurent et al (2002), the authors found that 78% of the patients were adherent while the optimal level of adherence was set at 80%. A similar adherence level was reported by a study conducted by Mukhtar-Yola et al (2006) in Amino Kano Teaching Hospital, Nigeria. This study found that 80% of studied patients achieved the optimal adherence level.

A relatively lower adherence level of 66% was reported in a study conducted in Uganda by Byakika et al (2005).

A meta-analysis of adherence studies done in sub-Saharan Africa and North America established an estimated 77% adherence rate in Africa compared to 55% found in North America (Mills et al 2006a)

In western countries the importance of adherence for the successful administration of ART has been underscored. The WHO (2003) has identified adherence to ART as the most important issue to obtain a successful treatment outcome. Studies have shown that non-adherence to ART is widespread. According to Rao (2007) it has been reported that adherence rates for youth ranges from 27% to 41%. Chesney (2000) also reported that about 10% of patients miss a dose or more in a day, and about 33% miss a couple of doses in a period of two to four weeks. On aggregate, non-adherence to ART is estimated to be between 50- 80% in different social and cultural settings (Amico et al 2003; Chesney et al 2000; Remien et al 2007)

In 2005 Zambia made a decision to provide Antiretroviral therapy free of charge to all in need of the treatment. Under considerable resource constraints, the target set for Zambia in the context of the WHO/UNAIDS-led global 3 by 5 initiative was the provision of ART to 100,000 people living with HIV/AIDS by the end of 2005. The Ministry of health who are the sole providers of ARVs have serious gaps in the monitoring systems and policy guidelines on adherence and follow-ups of the individuals on ARVs especially in the rural areas (WHO 2005). ARVs like all other drugs, if misused or the defaulter rate is high, resistance is the inevitable result. For Zambia and other poor countries, resistance to the first line treatment would spell doom for the country and the region as a whole.

According to a study which was conducted in the Northern Province in four selected districts the adherence rates indicated to be at 44% while non adherence was at 56%. (Medical Journal of Zambia)

According to Stringer et al, (2006), an open cohort study of more than 16 000 adult patients that were started on ART in urban Zambia (Lusaka), poor adherence was among the factors found to be strongly correlated with mortality

In a study conducted at Macha Mission Hospital in the Southern Province adherence rate were reported to be at 83.7% (Carlucc et al, 2008). Another study which was conducted in Mumbwa

showed 88% adherence among HIV positive clients (Nozaki, 2009). In another study conducted in eighteen primary care centers providing ART in Lusaka, demonstrated 62.9% optimal adherence, 28.3% suboptimal adherence and 8.8% poor adherence (Chi et al, 2009).

Therefore this study is aimed at determining factors that influence non adherence to ART among HIV positive patients. Despite the measures of improving adherence to ART, there have been reported cases of clients not adhering to the treatment. According to statistics at Chikankata Mission Hospital ART clinic, there are about 2105 clients who have been enrolled on ART since the commencement of ART services in 2004. The statistics include the males, females and the children who have been diagnosed HIV positive. The problem noted is that, out of the 2105 clients enrolled on ART, 309 have not adhered to their treatment making a total of 14.6 % (ART Reports, 2011).

### 13. FACTORS INFLUENCING THE PROBLEM

When a client is commenced on ART, adherence is called for as these drugs require an extremely high level of adherence for treatment to succeed. This requires adherence level of at least 95%. This requirement has proved to be a challenge to some of the people on ART due to various factors, some of which could be:

**Lifelong need for medication** could be one of the factors that result in suboptimal adherence to ART. Adherence may tend to decrease over time when one starts feeling better and their health improves, there may be a tendency to think that they no longer need to take the medication regularly. Despite the improved health, HIV positive clients need to continue taking the medication as required to prevent the implications of non adherence to ART.

**Side effects of the drugs** is another challenging factors to people taking these drugs. These side effects include nausea, headache, insomnia and long-term toxicities such as glucose intolerance, pancreatitis and peripheral neuropathy. There could also be marked change in the structure and appearance of an individual like development of a buffalo hump, mosquito leg, marked change on the face and as a result of lipodystrophy if someone is on stavudin. Such undesirable effects definitely distort one's beauty and would act as a deterrent to adherence. Despite the disfigurement caused the clients need to continue taking their medication for life.

**Attitude of health workers** could also be a contributing factor to non adherence. Some health care providers may be hostile to clients and probably not willing to give adequate instructions to the clients. As a result some clients may shun away utilization of health care services due to such negative attitudes of the health workers. Clients need to bare with the health care providers attitude as this may be due to overwhelming conditions under which they operate.

**The age** of a client may also contribute to non adherence to ART especially children. Partly this could result from caregivers who may face some challenges of disclosing the HIV status to the child. Infants or children may resist taking the drugs, whether in liquid or pill form, because of the bad taste or frustration in having to take medicine several times a day, day after day (sop 2004). As a result the adherence level will be compromised and the CD4 count would be reduced leading to lowered immunity. Sometimes, caregivers may forget to give the child their medication.

**The level of education** may have an influence on non adherence to ART. Lower level of general education and poorer literacy may impact negatively on some patients' ability to adhere, while a higher level of education has a positive impact (Jukes and Desai 2005). Some individuals with low level of education have shown some difficulties in taking the drugs as they do not appreciate the importance of taking the treatment as they are supposed to. Such clients should be assisted to take their medication by treatment supporters or their “buddies”.

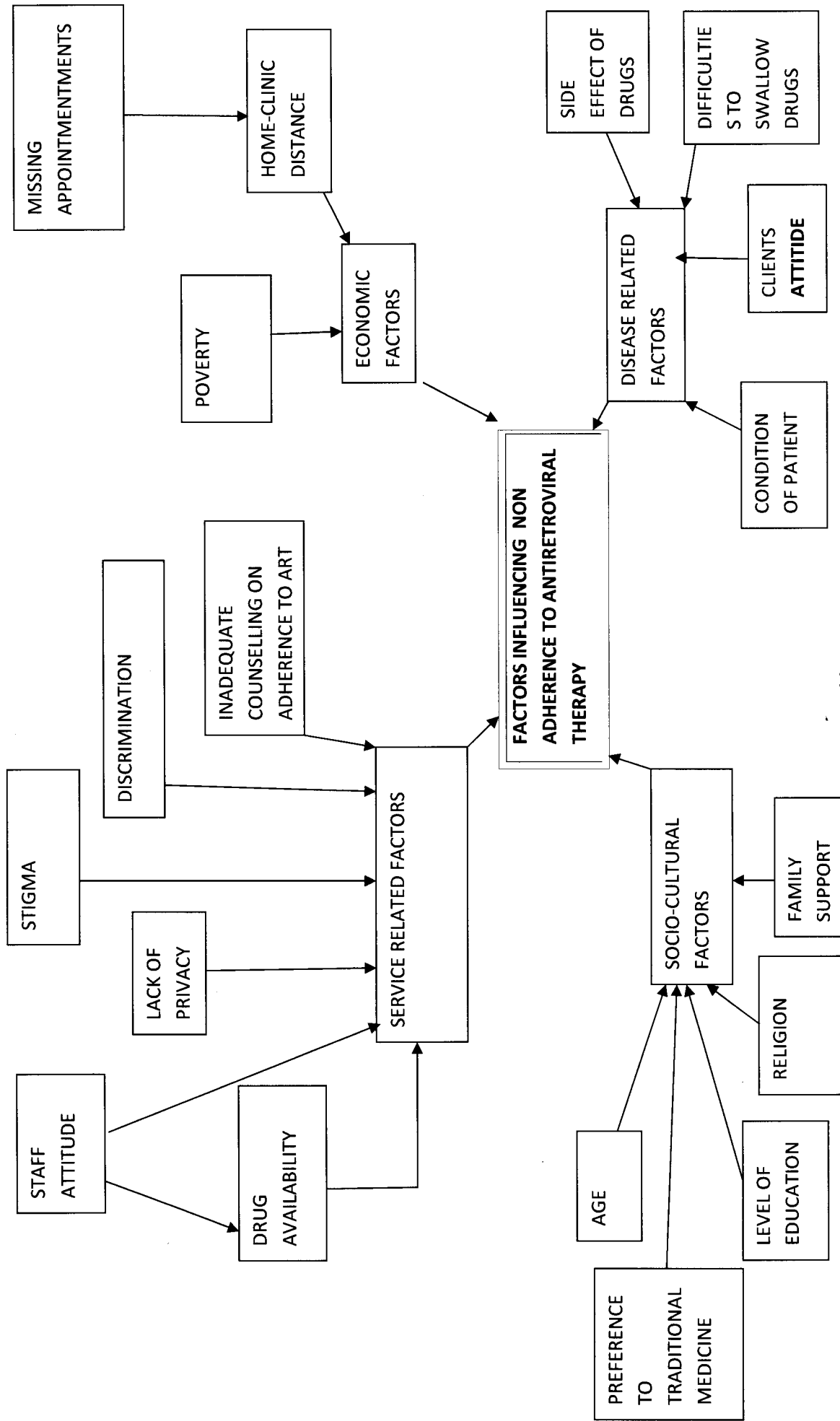
**The financial constraint** could be another factor that may contribute to non adherence to ART. Clinic visits costs money especially when the client lives very far from the clinic as the client will require transport money to go to the healthy facility and this may stretch an already meager budget. In resource-poor countries many people live below the poverty line and there is often no medical insurance or disability pension for people living with HIV (PLWHIV) (Katabira, 2002). Clients have missed their clinic appointment due to lack of finances and this has contributed to sub-optimal adherence to ART. Although clients face financial challenges, there is need for them to find other means of getting to the health facility to collect their medication and avoid missing some doses since their lives are more important.

**Lack of Social support** has a negative impact on adherence to ART. Social isolation and a lack of support have been associated with an increase in sub-optimal adherence as reported by Williams and Friedland (1997), and social isolation is predictive of sub-optimal adherence.

Motashari et al ( 1998) reported that, having a “buddy” who can either be a partner, social or family support, peer interaction or better physical interactions and relationships are characteristics of patients who achieve optimal adherence. Clients with adequate support from their families have shown optimal adherence rate to ART as they have someone to remind them to take the medicine and also keeping clinic appointments as scheduled.

# 1.4 DIAGRAM OF PROBLEM ANALYSIS

## FACTORS INFLUENCING NON ADHERENCE TO ANTIRETROVIRAL THERAPY.





## **1.5 CONCEPTUAL FRAMEWORK**

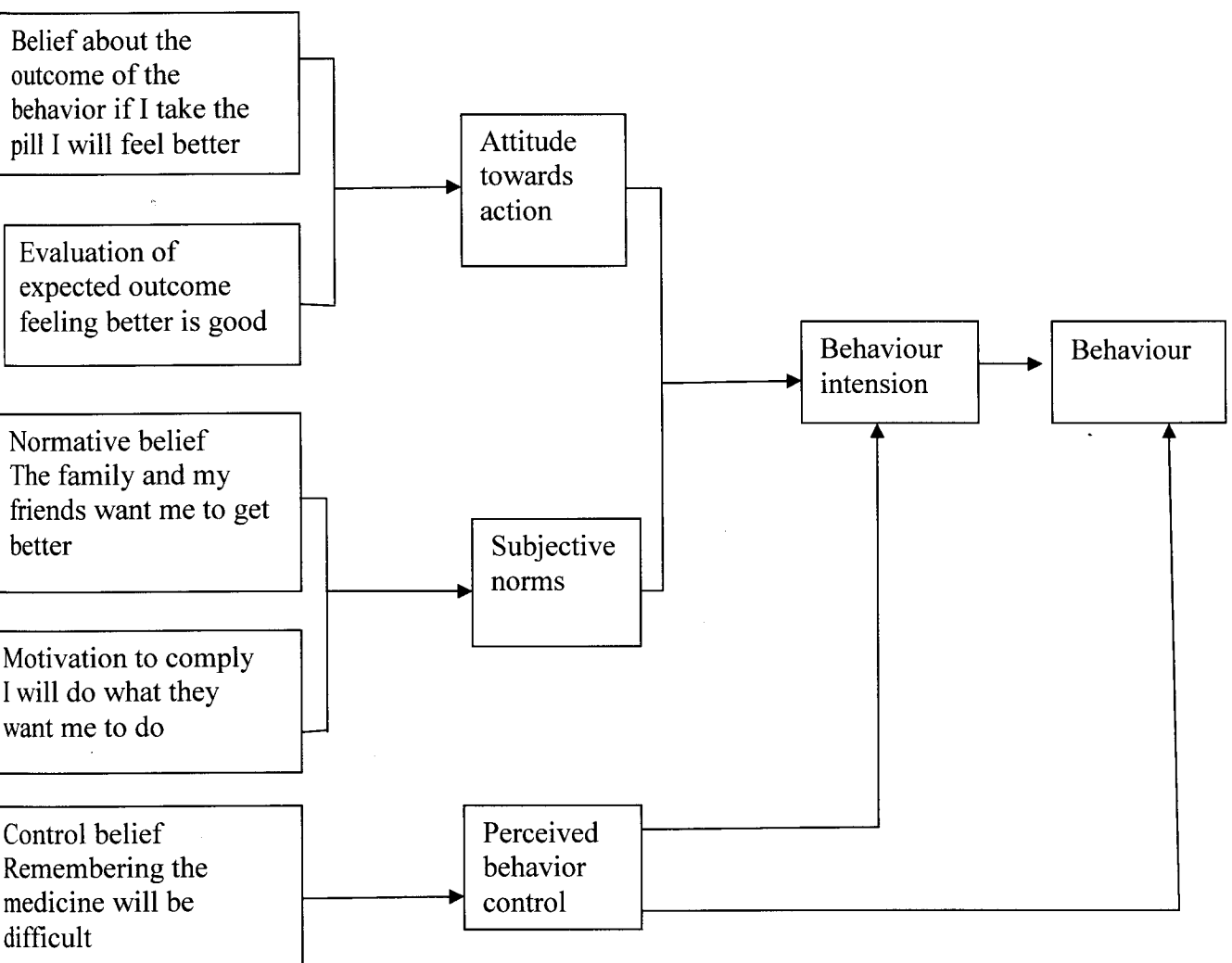
Scholars have come up with different approaches and models to explain health seeking behaviours. Such models utilize social psychology, medical sociology and medical anthropology to explain factors that enable or prevent people from making health choices. Mackian (2003) reported that the basic assumption is that human behaviour is shaped by individual perception of the social environment. The theory of planned behavior places greater emphasis on psychological factors at the expense of structural and social factors such as limited access or availability of resources and stigma, while information motivation behaviour skills model is concerned with adherence.

### **THEORY OF PLANNED BEHAVIOUR.**

The Theory of Planned Behaviour (TPB) is an extension of the Theory of Reasoned Action (TRA). Theory of Reasoned Action was proposed by Fishbein and Azjen (1975) cited in Noar 2007). This theory postulates that an individual's behaviour is determined by one's intention, which in turn is determined by three main predictors: attitudes; subjective norms; and, perceived behaviour control. Attitudes in theory of reasoned action refer to an individual's beliefs about the outcomes of his/her behaviour 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 (Nejad et al 2005; Armitage and Conner 1999). Behavioural 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. As an extension, Theory of Planned Behaviour has four principal areas: attitudes towards behaviour; subjective norms; perceived behavioural control; and socio-demographic variables. The most important aspect of the theory of planned action is the centrality placed on the role of social network support such as family, friends, partners, and feelings of self-control and self-efficacy. Because of this, according to Hausmann-Muela et al 2003 and Mackian 2003, the theory has been used extensively in HIV/AIDS research.

TPB has been hailed by Armitage and Conner (1999) and Hausmann-Muela et al (2003) for taking into account the motivational aspects of personal (disease) control, and the role of social networks and peer pressure in health behaviour. However, it has been criticised by some scholars such as Munro et al (2007) for placing greater emphasis on psychological factors at the expense of structural and social factors such as limited access or availability of resources and stigma.

## THEORY OF PLANNED BEHAVIOUR

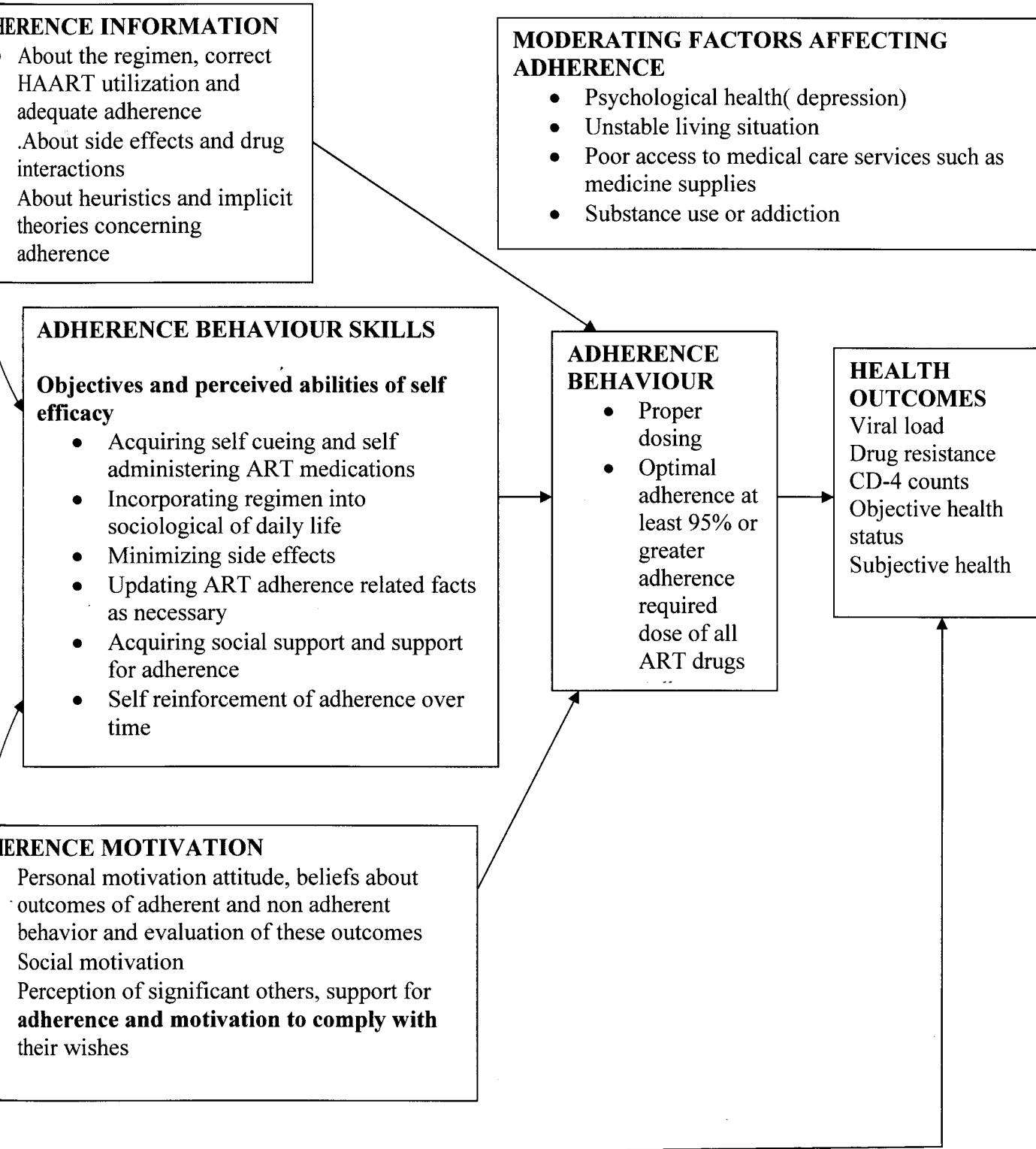


## **INFORMATION MOTIVATION BEHAVIOUR SKILLS (IMB) MODEL.**

In an effort to move from a uni-variate focus of factors that affects adherence at the individual level to a multivariate analysis, Fisher et al (2006) have proposed an information belief model, which borrows heavily from other health seeking models such as health belief model, theory of reasoned action and theory of planned behavior. Munro et al (2007) states that the information motivation behavior skills model has been used in a wide range of health related studies such as contraceptive use and HIV/AIDS prevention. According to Amico et al( 2005) and Starace et al ( 2006), the information motivation skills model suggests that information, motivation and behavioural skills are principle determinants of health related behaviour. In terms of ART, this model holds that People living with HIV/AIDS who are well informed, motivated to act and possess the behavioural skills that enable them to act effectively, will adhere to the ART treatment programme (Fisher et al 2006) . Conversely, a well informed, highly motivated person who lacks the requisite skills to acquire/take medications as prescribed, or lacks confidence in his/her ability to perform recommended medication intake would have problems with adherence (Starace et al 2006). Therefore, adherence related information which includes accurate information on particular regimens, correct ART intake and optimal adherence, and side effects associated with the regimen is necessary for the people living with HIV/AIDS (Starace et al 2006). Adherence-related motivation includes attitudes towards outcomes of adherence, perceived social support for adherence behaviour and the ability of the person to comply with the wishes of their significant others (Munro et al 2007). Behavioural skills, however, include such factors as the skills, and capabilities to adherence as well as the belief that they can effectively accomplish the adherence behaviour (Starace et al 2006; Munro et al 2007).

The information motivation behavior skills model has an advantage of being simple, and is promising as it isolates adherence related factors from other health seeking behaviour models. . Nevertheless, this model does not adequately deal with social-cultural and structural adherence-related factors. For example, issues such as stigma associated with HIV/AIDS in many contexts in the developing world do have an impact on patient adherence to ART.

**IBM MODEL OF ART ADHERENCE**



## 1.6. JUSTIFICATION

Despite the Government providing ART free of charge, statistics show that a good percentage of People Living with HIV/AIDS are not taking the treatment as required.

Although the clients have knowledge on the consequences of non-adherence to ART, adherence rates are sub optimal (WHO, 2004). Long term adherence interventions are needed for durable effective reduction of the viral load HIV (Sharon *et al.*, 2006). Antiretroviral therapy lowers viral load only when treatment regimen is fully adhered to, for example, antiretroviral regimens have improved survival and decreased the incidence of opportunistic infections in people with HIV to a certain extent. Human immune deficiency virus (HIV) poses a unique challenge due to its rapid replication and mutation rates hence very high levels of adherence at least greater than 95%, are required to achieve long-term suppression of viral load (Paterson *et al.*, 2000).

However, some clients do not return for follow up on schedule and are likely to be non-adherent to prescribed HAART regimens. There is growing concern about loss to follow-up and non adherence to antiretroviral therapy as significant barriers to care in Chikankata Mission Hospital ART clinic. The information from this study will be used to strengthen measures to ensure that HIV positive clients adhere to ART. The study will also empower clients and families on the importance of adhering to treatment.

## **1.7. RESEARCH OBJECTIVES**

### **1.7.1. GENERAL OBJECTIVE**

To determine the factors that influence non adherence to Antiretroviral therapy among HIV Positive clients at Chikankata Mission Hospital ART clinic.

### **1.7.2. SPECIFIC OBJECTIVES**

1.7.2.1. To determine the patient's knowledge, attitude and perception on the use of ART

1.7.2.2. To explore the clients knowledge on the effects of non adherence to ART drugs.

1.7.2.3. To assess how effective the health education given to HIV positive clients is on the importance of adherence to ART.

1.7.2.4. To make necessary recommendations to relevant authorities

## **1.8 HYPOTHESES**

1.8.1 When the level of education increases, adherence to ART also increases.

1.8.2 When inadequate health education is given to clients concerning adherence to treatment, non adherence rate will increased.

## **1.9 CONCEPTUAL DEFINITION OF TERMS**

**Antiretrovirals (ARVs)** – Drugs designed to suppress the progression of HIV/AIDS and consists of a double or a triple combination.

**Viral Load** – This is the levels of virus found in the blood per 10 mls

**Behaviour** - a response of an individual or group to an action, environment, person, or stimulus.

**Intention** - an anticipated outcome that is intended or that guides one's planned actions;

## 1.9 VARIABLES AND CUT OFF- POINTS

VARIABLE	INDICATOR	CUT-OFF POINT
Knowledge about adherence	High level of knowledge	At least 9 correct responses to questions 12-24 concerning knowledge on adherence to ART treatment.
	Medium level of knowledge	At least 4-8 correct responses to questions 12-24 concerning knowledge on adherence to ART treatment
	Low level of knowledge	Less than 4 correct responses to question 12-24 concerning knowledge on adherence to ART treatment
Social economic status	High	Clients earning K700,000.00 – K1,000,000.00 per month for their living
	Medium	Clients earning K300,000.00 – K550,000.00 per month for their living
	Low	Clients earning less than K250,000.00 per month for their living
Counselling	Adequate	Clients counselled before commencement of ART and subsequent visits – questions 26-32
	Inadequate	Clients counseled before commencement of ART and not on subsequent visits – questions 26-32
Attitude	Positive	Client is able to take the drugs as intended and does not avoid others due to the illness and does not miss appointment schedules - 33-35
	Negative	Client does not take drugs as intended, avoids others due to illness and misses appointment dates - 33-35
Distance	Near	Less than 5kms –takes 30-60 minutes walk to the clinic as indicated to question 11.
	Far	More than 5kms – Clients take 90 minutes or more to walk to the clinic as indicated to question 11.
Family support	Present	Family members willingness to support and help the client as indicated to questions 36-37
	Absent	Family members not available or willing to support the client as indicated to questions 36-37

## **CHAPTER TWO**

### **2.0 LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

Literature review is an exhaustive systematic examination of publication relevant to the research project. It is the comprehensive in depth, systematic and critical review of scholarly publications, unpublished scholarly print materials, audiovisual materials and personal communications (Basavanthappa, 2007)

The typical purpose of analyzing or reviewing literature is to generate research questions, identify what is known and not known about a topic, identify conceptual and theoretical traditions within the bodies of literature and to describe methods of enquiry used in earlier work including their success and short comings.

The types of information sources for a literature are conceptual and data-based literature. The common sources of both of these literatures are books, journals, articles, abstracts, published in conference proceedings, professional and government reports.

#### **2.2 OVERVIEW OF HIV/AIDS**

Globally, the number of people living with HIV continued to grow in 2008, reaching an estimated 33.4 million (31.1 million-35.8 million) (WHO 2009). The total number of people living with HIV reflects the combined effects of continued high rates of new HIV infections and the beneficial impact of antiretroviral therapy. As of 2008, approximately 4 million people in low and middle income countries were receiving ART- a 10 fold increase over 5 years.(WHO, UNAIDS,UNCF 2009).

The Sub- Saharan Africa remains the region most heavily affected by HIV. In 2008, Sub-Saharan Africa accounted for 68% of the new HIV infections among adults and 91% of new infections among children. The region accounts for 72% of the world's AIDs related death in 2008. The pandemic continues to have an enormous impact on the household, communities, business, public service and national economies in the region.

Zambia with an estimated population of about 12.2 million, is one of the countries hardest hit with the HIV and AIDS pandemic in the world (WHO, USAID 2009). Although the basic knowledge about HIV and AIDS stands at 99% among the adult populations (age 16-49), the national



prevalence rate reduced only slightly from 15.6% in 2001/2002 to 14.3% in 2007 (ZDHS 2007). The prevalence rate has also remained significantly high in urban areas (23.3% in 2001/2002 and 19.7% in 2007) compared with the rural areas (10.8% in 2001/2002 and 10.3% in 2007) (NAC, 2009)

Although great strides have been made to reduce on the number of people dying from AIDS related illnesses, new infections must be averted and access to anti-retroviral therapy (ART) must be improved. Adherence to antiretroviral therapy (ART) is well recognized to be an essential component of individual and programmatic treatment success. Higher levels of adherence are associated with improved virological and clinical outcome as stated by Paterson *et al.*, 2000; Orell *et al.*, 2003. Near perfect pill taking of 95% and above are desirable in order to maximize the benefits of ART. This means taking the correct dose of drugs at the right times and observing any dietary restriction. Anything less than this leads to the development of viral resistance and treatment failure (Paterson *et al.*, 2000). Missing even only one tablet in a week translates to only 92.8 % adherence (Engender Health Society 2006).

A person who takes ARVs erratically will receive only marginal benefits, but will suffer similar side effect and will potentially limit their future treatment options. It is important that all patients are able to demonstrate an understanding of this before starting treatment. A patient who stops taking ARV entirely will lose any benefit they may have received in terms of increased immunity as the virus flourishes and CD4+ cells are destroyed. Patients must be made aware that ARV treatment is a lifelong treatment.

## **ANTIRETROVIRAL THERAPY**

Currently most effort is focused on reducing immediate risk by bringing about behavior change though behavior change has been difficult to achieve and sustain because the risks related to HIV and AIDS exposure are not always easy to control. Previously it has been argued that in resource poor settings, either prevention or treatment must be prioritized. Prevention programmes have been funded at the expense of treatment programmes simply because prevention programmes are generally cheaper (WHO, 2004). It is now clear that prevention, care, support and treatment of people affected by HIV and AIDS are mutually reinforcing elements of an effective response (WHO, 2004).

Incorporating AIDS treatment into the established preventive measures only serves to strengthen them. It must be acknowledged that ART though important, is only part of comprehensive

treatment programme for HIV disease that includes voluntary counseling and testing (VCT), prevention and treatment of opportunistic infections and proper diet. They are essential for the success of therapy because they prevent re-infection and reduce the transmission between discordant partners.

While the cure for HIV infection does seem far at the present moment, the enormous potential of these drugs to delay disease progression is undoubted. Anti-retro-viral drugs are broadly classified into the following groups:

- i) Nucleoside analogue reverse transcriptase inhibitors (NRTI).
- ii) Non-nucleoside reverse transcriptase inhibitors (NNRTI).
- iii) Protease Inhibitors (PIs) (MOH, 2010 and WHO, 2005)

There is renewed sense of optimism that HIV could be transformed from a rapidly fatal disease to a manageable chronic illness. However, even among those on ARV treatment, drug side effects, co-morbidity, complexity of regimens, life-long pill taking and the quality of life that results from ART use may significantly limit the outcome of ART (MOH, 2010).

Although currently available, ARV drugs are far from ideal, on-going pharmacological research may in future produce drugs that are less costly, easier to administer and fewer adverse effects and or resistance. According to Piot and Coll-Seck, 2001 access to ARV drugs can motivate individuals to be tested for HIV and help to break the barriers of isolation and despair. Over the last few years the issue of making AIDS drugs more readily available to people in poor countries has received more attention from treatment advocates, policy makers, heads of states and the media.

**Goals of Antiretroviral Therapy**

From the point of view of patients, the primary goal of therapy is improvement of quality of life consequent to the reduction in morbidity, a result of treatment induced immune recovery. The goals of therapy therefore include, improvement of the patient’s quality of life, reduction of HIV related morbidity and mortality, restoration and or preservation of immunologic function and maximal and durable suppression of the viral replication (MOH, 2010).

Patients’ education to ensure long term adherence to treatment associated with treatment success should cover the following,

- Why lifelong continuous treatment is necessary and the expected benefits of treatment.
- Adherence and its relation to treatment outcome.

- Drug resistance
- Necessity for regular follow up
- Need to avoid non prescribed drugs including herbal medication whose interaction with ARV drugs are unidentified or undesirable.

Health providers should be able to assess and prepare patients to ensure long-term adherence to treatment, use drugs rationally allowing for future treatment options, ensure regular and adequate monitoring of patients, manage complications of treatment and be able to change or discontinue treatment (MOH, 2010).

## **KNOWLEDGE**

A Lower level of general education and poorer literacy impacts negatively on some patient's ability to adhere whilst a higher level of education has a positive impact

Educating a patient effectively and assessing their understanding can be time consuming and labour intensive, but it is never time wasted. Simply giving a prescription at the first visit without sufficient adherence counseling is clinically negligent. Antiretroviral therapy providers that do not seriously address the complex issue of adherence will fail in their objective of helping their patients. At the public level this may cause the development of multi drug resistant strains within the population they serve and which would have direct public health implications. Adherence is therefore central to the success of ART (Nyambura, 2009)

Non-adherence to ART might involve a person missing one dose of a given drug, missing a dose of all the three drugs, missing multiple doses, not observing the time intervals, not observing the dietary restrictions, not taking the correct dose of any drug (Engender Health Society 2006).

Non-adherence can lead to poor clinical, immunological and virological outcomes. At an individual level the consequences of non adherence include, incomplete viral suppression, continued destruction of the immune system and decrease of CD4+ cell count, progression of disease, emergence of resistant viral strains and limited future therapeutic option and higher cost for individual treatment which translates to higher program cost (WHO, 2004). Proper education of patients before the initiation and during ART is important for the success of adherence. Strategies such as education should cover basic information about HIV and its manifestations, the benefits and side effects of ARV medications, how the medications should be taken and the importance of

not missing any doses. Adherence assessment should be combined with adherence counseling at each visit.

## **COUNSELLING**

It is rare that a physician is able to address all the concerns of a patient during the standard clinic visits. Optimal care should be capable of meeting both the medical and needs of a patient. It is therefore important that adequate time is set aside for counseling so that appropriate and informed decision on therapy and its implications are made by the patient (WHO, 2000). All the positive messages initiated during the pre and post-test counseling should be reinforced during counseling for ART. The issues that should be discussed during counseling include financial considerations, drug information, emotional support, and disclosure and drug adherence. Counselors should also help patients to make decisions on prevention of transmission especially among discordant partners, decision about getting pregnant or entering marriage and decision about appropriate sexual behavior. All these are important in the overall outcome of treatment since they outline the expectations of both the caregivers and the patients.

## **SOCIAL SUPPORT**

There is some emerging evidence to show that social support is vital in fostering adherence for People Living with HIV/AIDS on treatment. Social support is obtained from different sources such as partners, children and other family members. These could help adherence behaviour by taking a leading role in reminding the client to take the pills. Living alone and a lack of support have been associated with an increase to non adherence and social isolation is predictive of non adherence, while having a partner, social or family support, peer interaction, and better physical interactions and relationships are characteristics of adherent patients

## **ASPECTS OF THE CLINIC AND SERVICE PROVISION**

The effect that the clinic setting has on adherence should not be underestimated. Clinic characteristics that impact on adherence include: proximity to the patient's home or place of work, the expense of getting there, lengthy delays between appointments, clinic opening and closing times, long waiting times, lack of services such as child care, privacy, confidentiality, and unsympathetic or inconsiderate staff (MOH and NAC, 2010). A Lower level of general education

and poorer literacy impacts negatively on some patient's ability to adhere whilst a higher level of education has a positive impact (Jukes and Desai, 2005).

## **MEASUREMENT OF ART ADHERENCE**

Researchers who have tried to measure ART adherence have realized that there is no stipulated standard by which adherence can be quantified. The many methods employed by different studies include: pill counting, electronic drug monitoring (EDM), pharmacy refill records, biochemical markers and other self reporting techniques such as visual analogue and recall method. The relative accuracy of adherence measures ranks from physician assessment and self –assessment being the least accurate to pill counting being intermediate and EDM being the most accurate as stated by Gill *et al.*, (2005). Electronic drug monitoring more accurately predicts undetectable viral load than self-report or pill count. Its main advantages are that it provides data on the timing of doses taken and permits monitoring over long periods. Since adherence can be known precisely, the link between adherence levels and undetectable viral load can be established with a high degree of confidence. Arsten *et al.* (2001) noted that patients whose EDM data indicated high adherence (above 90%) were far more likely to achieve undetectable viral load than patients self-reporting the same level of adherence. Other studies had similar results on the relationship between undetectable viral load and EDM-rated adherence.

Paterson *et al.* (2000) observed undetectable viral load in 80% of those with above 95% adherence, while in a trial conducted by Kirkland *et al.* (2002) mean adherence was 94% with 85% of the patients achieving undetectable viral load. However, no single measure is appropriate for all settings or outcomes. It has been found that the use of more than one measure of adherence allows the strength of one method to compensate for the weakness of the other and to accurately capture the information needed to determine adherence levels. Non-Adherence to ART can be influenced by various factors as follows.

## **PATIENT FACTORS**

Patient factors include fear of disclosure and wanting to avoid taking medication in public places, feeling depressed, hopeless, or overwhelmed, having a concurrent addiction, forgetting to take medication at the specified time. Other barriers include being suspicious of treatment/medical establishment, wanting to be free of medication or preferring a natural approach (due to treatment fatigue); feeling that treatment is a reminder of HIV status, wanting to be in control, not

understanding treatment instructions, still having doubt or not being able to accept HIV status and lack of self worth (Orell and Bangsberg,2003).

Belief about medication; there were eight reported barriers pertaining to beliefs/perceptions about medications. Some common barriers in this category included: side effects (either real or anticipated), complicated regimens, and the taste, size, dosing frequency, and /or pill count. Orell and Bangsberg, (2003) also observed that, when individuals prescribed on ART felt healthy, adherence was often negatively affected. Other barriers include doubting the efficacy of HAART, having a decreased quality of life; uncertainty of long-term effects and unwanted changes in body image as stated by Mills *et al.*, 2006.

**IMPACT OF THE DRUG REGIMEN ON ART ADHERENCE**

Grierson *et al* (2000) stated that almost all of those who are on ART are on regimen of three or more drugs. The likelihood of a patient’s adherence to a given regimen declines with polypharmacy (too many pill at one time), the frequency of dosing, the frequency and severity of side effects and the complexity of the regimen. Poor adherence has also been associated with patients desire to avoid embarrassing side effects (like sweating) in certain situations such as on a date or at a job interview. Also Nakiyemba et al. (2005) stated that, dietary restrictions add to the complexity of ART and often require adjustments in lifestyle. Patients can find their meal schedule compromised by ART that need to be taken on an empty stomach. This can be particularly difficult if workmates, family or friends are unaware of the patients HIV status. Complicated regimens with rigid dosing intervals may also interrupt sleep.

# CHAPTER THREE

## 3.0. RESEARCH METHODOLOGY

### INTRODUCTION

This chapter explains the methodology that was used in the entire study. The chapter includes the study area, study design, target and study populations, sampling techniques, research instruments and ethical considerations

### 3.1 RESEARCH DESIGN

Research design is the plan, structure and strategy of investigating of answering the research question is the overall plan or blue print the researchers select to carry out their study (Basavanthapa, 2007).

It includes specifications for enhancing the validity of the study and it also points out the basic strategies that the researcher adopts to develop information that is accurate and interpretable. In this study a descriptive non experimental design was used.

The design was appropriate because of its practical element where the study participants could be captured during one data collection period and loss of participants was avoided. It was also feasible to manage within a short period of time.

### 3.2 RESEARCH SETTING

Research setting is the physical location and condition in which data collection takes place during a study (Polit et al, 2001).

The study was conducted at Chikankata Mission Hospital in Mazabuka District of the Southern Province. The site was selected because of accessibility and convenience. The site was also preferred because it was rural and in most cases such areas could usually be underserved.

### 3.3 STUDY POPULATION

The study population is the total category of persons or objects or measurement having observable characteristics in common (Basavanthapa, 2007).

The study population comprised of HIV positive clients on ART, attending ART clinic at Chikankata Mission Hospital.

### 3.4 SAMPLE SELECTION

Sampling is the process of selecting representative units of a population for study. It is the process of selecting a subset of a population in order to obtain information regarding a phenomenon in a way that represents the entire population (Basavanthapa, 2007). Non probability sampling (convenient sampling) method was used to select the clients who did not adhere to ART treatment. Retrospective record review was used to identify clients who did not adhere to ART. The clients selected from the register were followed in their respective areas of residence.

#### Inclusion Criteria

The inclusion criteria also known as eligibility criteria is defined as those characteristics that the respondents must possess to be part of the target population. Only HIV positive clients from the age of 18 years and above started on ART and with a record of non adherence were included in the study.

#### Exclusion Criteria

The exclusion criteria comprised of those HIV positive clients who were not yet commenced on ART treatment because they were not eligible for the study and those who were HIV positive but did not consent to participate in the study because this would have been infringing on the clients rights. Those adhering to ART were also excluded because they took the medication as required.

### 3.5 SAMPLE SIZE

A sample size is the number of participants in the total population to participate in the study (Polit et al 2001).The sample size for the study was 50 clients who were on ART both males and females. The sample size was selected on the basis of the clients and finances available and also as part of partial fulfillment of Bachelor of Science in Nursing. The number was also considered within the limited time in which the study was to be conducted.



### 3.6 OPERATIONAL DEFINITIONS

Human immunodeficiency virus - the virus that causes AIDS.

**Non Adherence** - failure of the patient to take medication in a way intended by the health care provider.

**Knowledge** - the fact or condition of being aware of something or the range of one's information or understanding

**Attitude** - a complex mental state involving beliefs and feelings and values and dispositions to act in certain ways.

**Adherence** - the extent to which a patient takes a medication in the way intended by a health care provider.

**Variable** - is an attribute or characteristic that can have more than one value such as height, Blood pressure and weight (Basavantappa,2007)

**Dependent variables** - These are variables that changes as a result of manipulation of the independent variable. They are sometime referred to as effect or outcome variables.

**Independent variables** -These are variables that stand on their own and are not dependent on any other. These variables are used to measure or describe the factors that are assumed to cause or influence the problems.

### 3.7 DATA COLLECTION TOOLS

Data collection tool refers to an instrument used to collect data. It may take the form of a questionnaire or interview, checklist or other type of tool to disclose information (Treece and Treece 1986).

In this study a structured interview schedule was used to collect data from the participants. The tool comprised of predetermined responses in some cases. Standardized questions were asked to the study participants in the same order and manner. This was done to facilitate comparability of the results across the study participants. It also allowed generalization of the results to the target population. The data collection tool was used to both the literate and the illiterate. The researcher entered the responses on behalf of the study participants. Clarifications were made for the questions that seemed to be unclear to the participant. The average length of time taken for each participant was approximately 30-40 minutes.

**Validity**

Validity refers to determination of whether the measurement instrument actually measures what it purported to measure (Basavanthappa, 2007).

In order to ensure validity in this study, all the variables under study were covered in the questionnaire. The questions were clearly stated with instruction to follow given. The questions were simplified, concise and someone was asked to read through the questionnaire before administering it to the clients. The questions were asked to the participants in the same way. Then a pilot study was done at Mazabuka District Hospital preceding the major study so that ambiguities in the questions were corrected.

**Reliability**

Reliability is the consistence or accuracy with which an instrument measures the attribute it is designed to measure (Polit, et al 2001)

To measure reliability of the instrument used, the study participants were exposed to the questionnaire once only and it was used on all the participants

**3.8 DATA COLLECTION TECHNIQUE**

Data collection technique is the method that the researcher uses to collect accurate and relevant data (Polit and Hungler, 2001)

The process started when permission was granted from the Department of Nursing Sciences to go in the field to collect data. A structured questionnaire was used to collect data. An explanation was made to the participants on the purpose of the study and they were asked to give consent to participate in the study. The participants were assured of confidentiality, anonymity and privacy. The interview commenced by general discussion and then the purpose of the interview was explained to them. At the end of each interview the researcher thanked the client for participating in the study.

### **3.9 PILOT STUDY**

A pilot study is a small preliminary investigation of the same general character as the major study, which is designed to acquaint the researcher with problems that can be corrected in preparation for the large research project or is done to provide the researcher with an opportunity to try out the procedures for collecting data. During the pilot the instrument goes through a pre-test (Basavanthappa, 2007)

The research instrument was pre-tested to increase the validity and reliability of the responses. Pre-testing was done on 5 participants at Mazabuka District Hospital. These participants were not included in the study sample. Regular cross checking, inspection and scrutinizing of information on the research instruments was done to ensure accuracy, relevance, completeness, consistency and uniformity of the data collected. The study was conducted also to make necessary adjustments to the data collecting tool to ensure validity and reliability.

### **3.10 ETHICAL AND CULTURAL CONSIDERATION**

Ethics is a system of moral values that are concerned with the degree to which research procedures adhere to professional, legal and social obligation to the research subjects (Polit and Hungler, 2001).

The Ethical Considerations included getting permission to carry out the research study from the department of Nursing Sciences and written consent from Chikankata Mission Hospital. It also involved getting informed consent from all the study participants and confidentiality, anonymity and privacy were guaranteed. The researcher also got permission from Mazabuka District Hospital through the District Medical Officer to conduct a pilot study. The researcher maintained confidentiality and anonymity by using serial numbers and not names of participants on the tool for collecting data. A few adjustments were made to the questionnaire after conducting the pilot study.

## **CHAPTER 4**

### **DATA ANALYSIS AND PRESENTATION OF FINDINGS**

#### **INTRODUCTION**

This chapter is focusing on the data analysis and presentation of information obtained. The purpose of this study was to determine factors influencing non adherence to Antiretroviral drugs among HIV positive clients.

#### **4.1 DATA ANALYSIS**

Data analysis is the systematic organization and synthesis of the research data and testing of the research hypothesis using those data (Polit and Hungler, 2001)

After data was collected, all the questionnaires were sorted and checked for completeness and internal consistency. Responses from closed ended questions were entered directly on the data master sheet, while those responses from open ended questions were coded and categorized before entering them on a data master sheet for manual analysis. The data was further analyzed by use of SPSS 16.0 version

The data master sheet was divided into five categories. These included demographic, economic, knowledge on adherence to ARV drugs, practice of health care providers and patients on ART Counselling, clients' attitude towards ART, family support and social-cultural factors.

#### **4.2 PRESENTATION OF FINDINGS**

The results were presented in frequency tables, bar charts, pie charts, and cross tabulation to show the relationships among variables.

**SECTION A:**

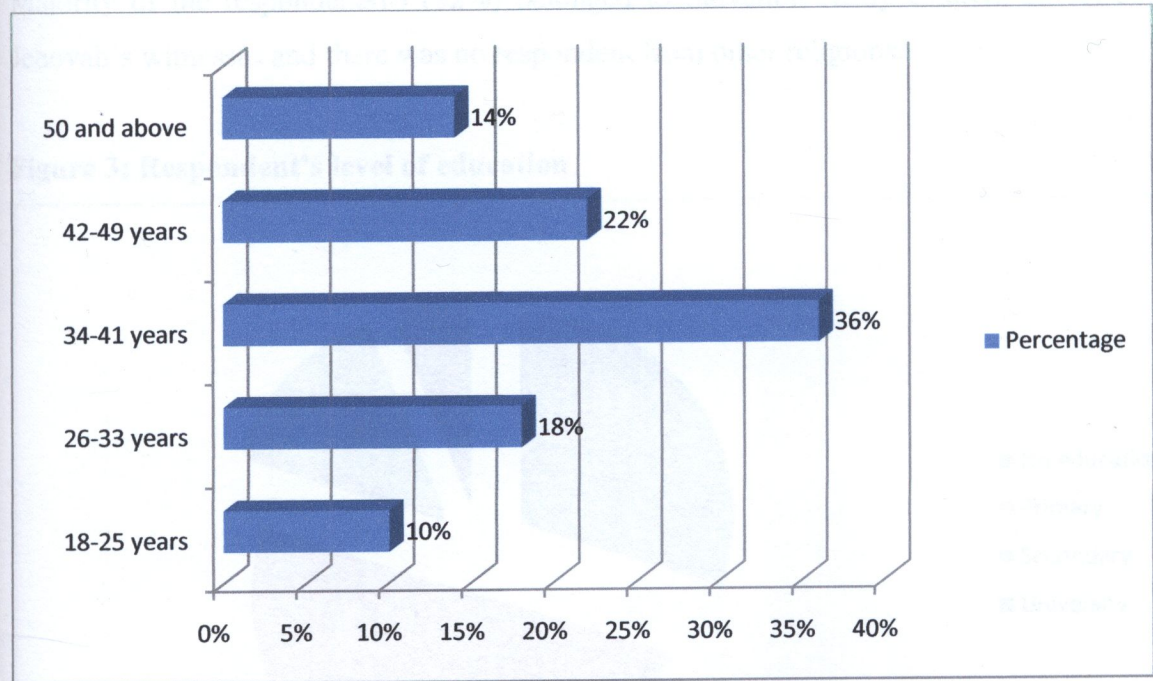
**4.2.1 DEMOGRAPHIC DATA**

**Table 1: Sex/gender of participants**

Sex	Frequency	Percentage
Male	15	30
Female	35	70
<b>Total</b>	<b>50</b>	<b>100</b>

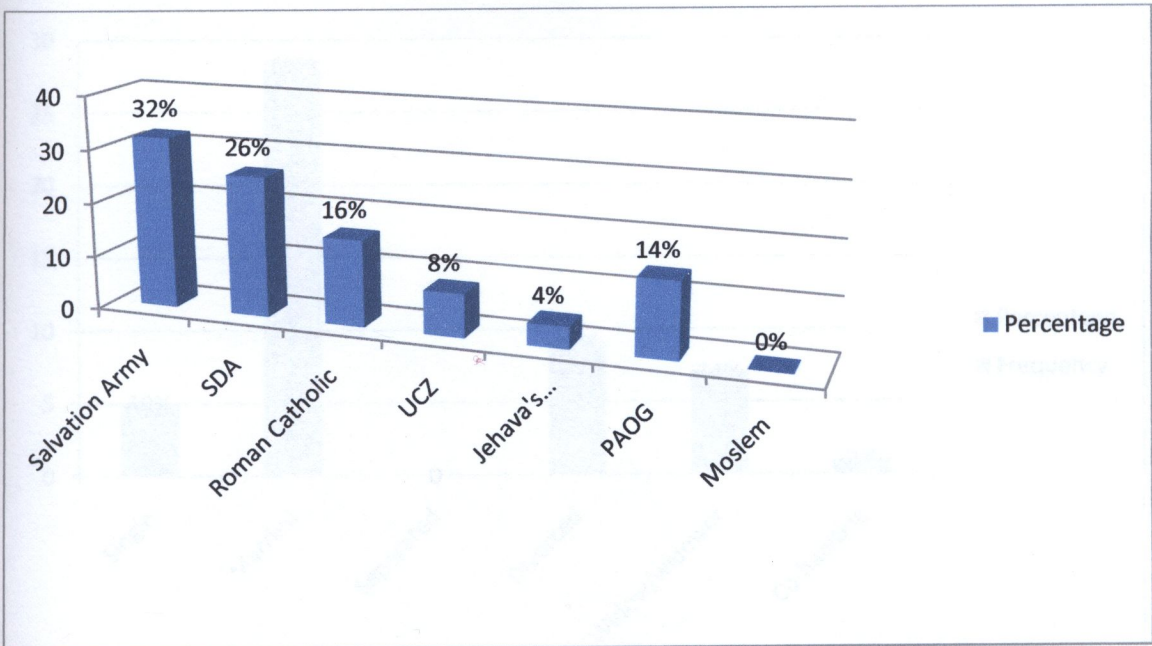
Majority of the respondents 35 (70%) were females while 15 (30%) were males.

**Figure 1: Respondents' age**



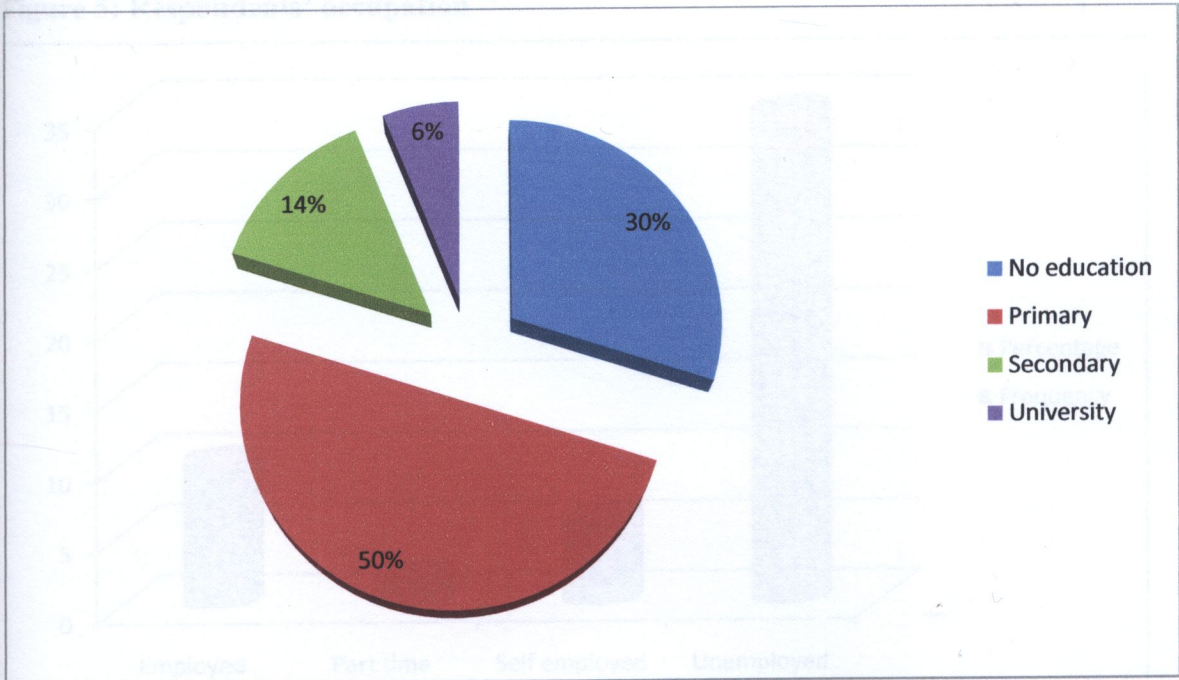
Majority of the respondents 18 (36%) were aged between 34-41 years and 5 (10%) were in the range of 18-26 years.

**Figure 2: Respondents' denomination/religion**



Majority of the respondents16 (32%) belonged to Salvation Army Church, 2(4%) belonged to Jehovah's witnesses and there was no respondent from other religions.

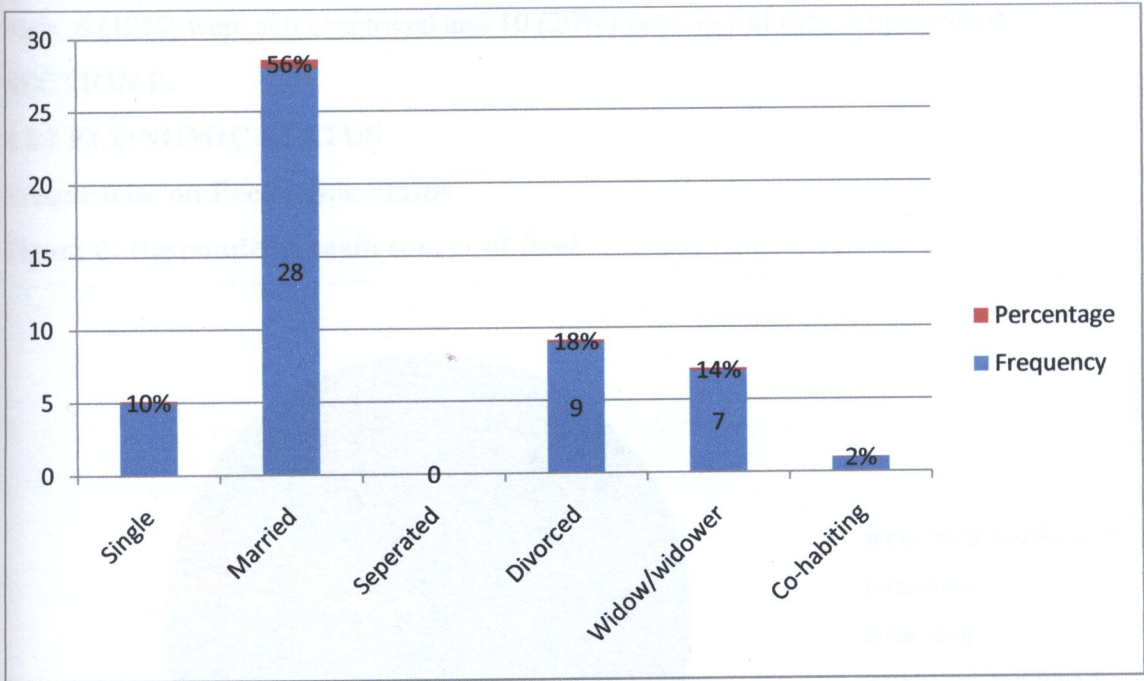
**Figure 3: Respondent's level of education**



The figures shows that majority of the respondents 25 (50%) attained primary education, 15(30%) had no education, while only 3 (6%) attained university/college education.

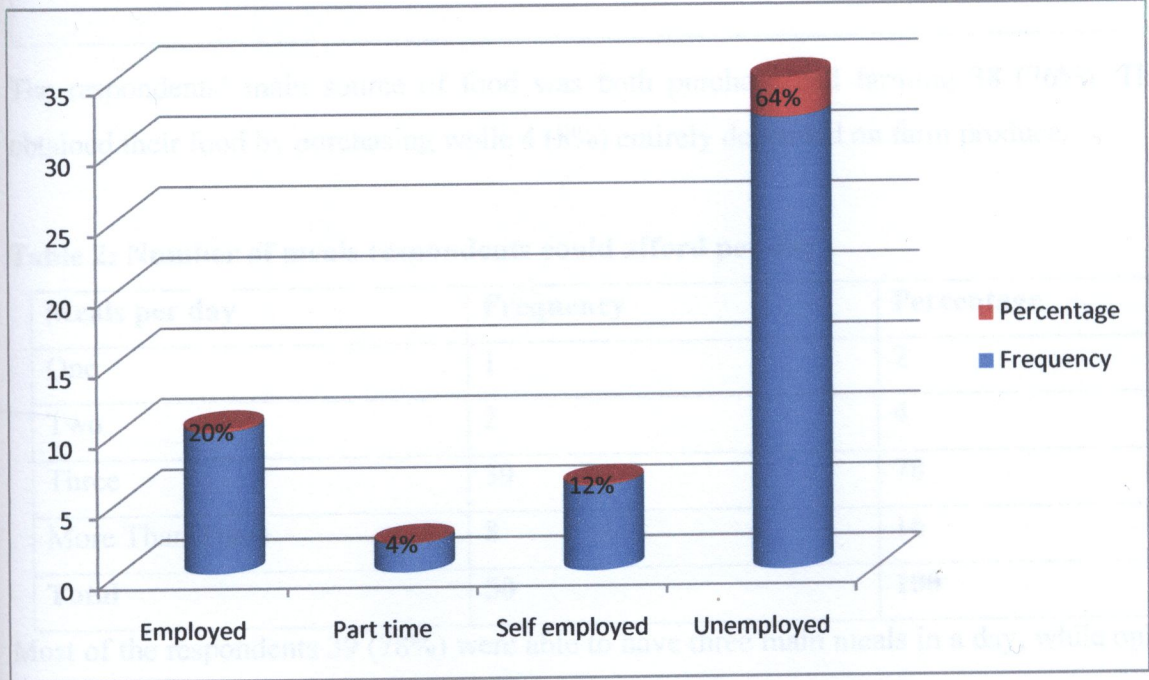


**Figure 4: Respondents' marital status**



Twenty eight (56 %) of the respondents were married and only 1 (2%) was co-habiting. Five (10%) were single, 9 (18%), divorced and 7 (14%) were either widows or widowers

**Figure 5: Respondents' occupation**



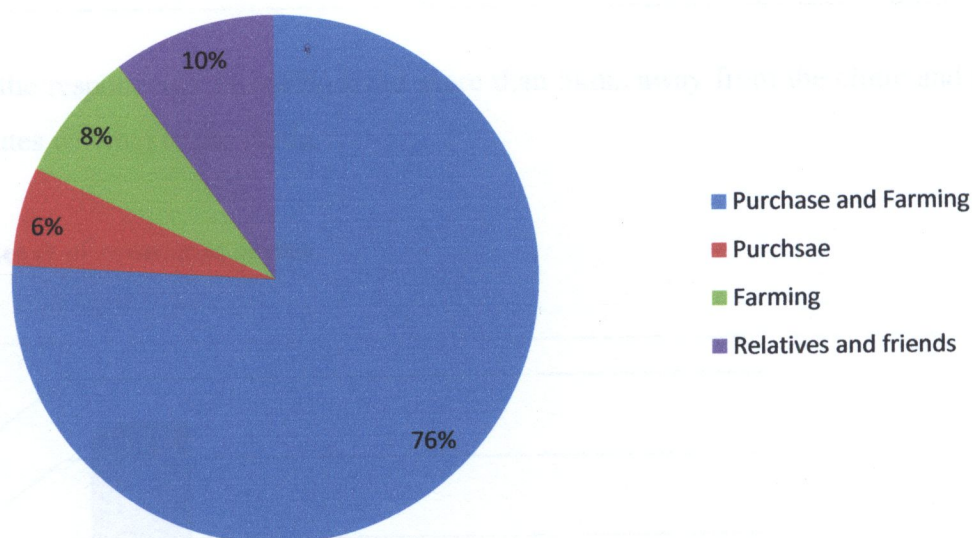
Majority of the respondents 32 (64%) were unemployed, 2 (4%) were employed on part-time basis, 6 (12%) were self employed and 10 (20%) were in full time employment.

## SECTION B:

### 4.2.2 ECONOMIC STATUS

#### Frequencies on Economic Status

**Figure 6: Respondents main source of food**



The respondents' main source of food was both purchase and farming 38 (76%). Three (6%) obtained their food by purchasing while 4 (8%) entirely depended on farm produce.

**Table 2: Number of meals respondents could afford per day**

Meals per day	Frequency	Percentage
One	1	2
Two	2	4
Three	39	78
More Than Three	8	16
<b>Total</b>	<b>50</b>	<b>100</b>

Most of the respondents 39 (78%) were able to have three main meals in a day, while only 8(16%) could afford more than three meals.

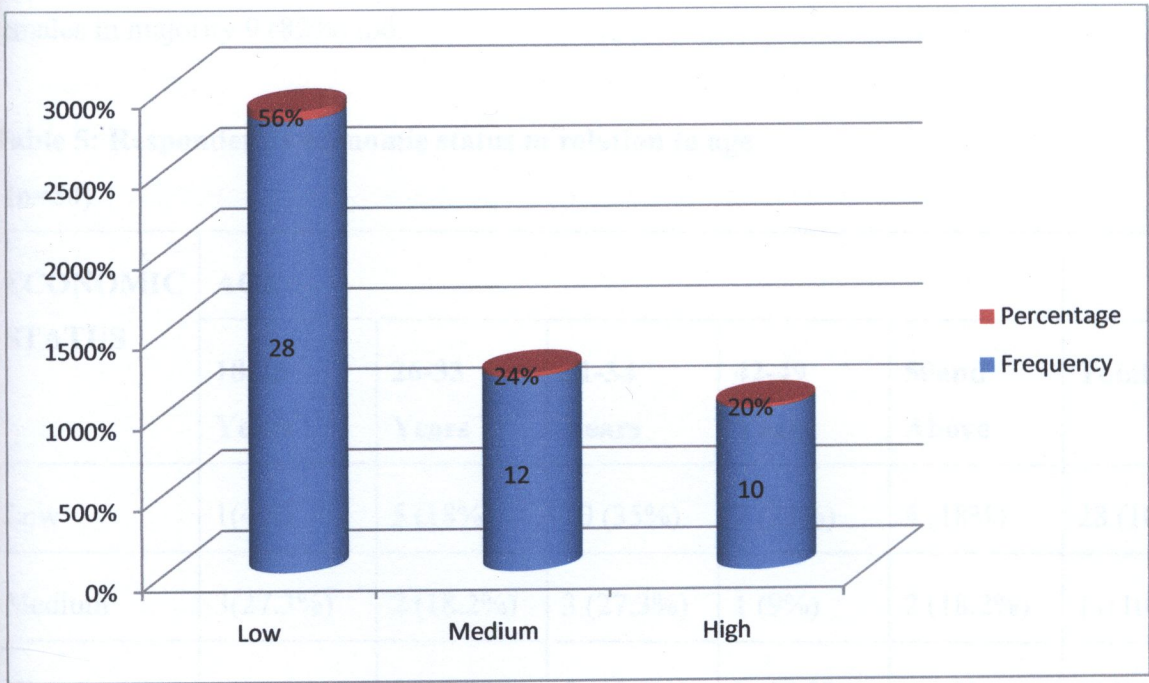


**Table 3: Time taken by respondent to walk to the clinic**

Time	Frequency	Percentage
Less than 30 minutes walk	5	10
30 minutes to 60 minutes walk	6	12
60 minutes to 90 minutes walk	5	10
More than 90 minutes walk	34	68
Total	50	100

Majority of the respondents 34 (68%) lived more than 5kms away from the clinic and took more than 90 minutes walking to the clinic.

**Figure 7: Level of economic status**



The table shows that majority of the respondents 28 (56%) were of low economic status, 12(24%) were of medium economic status while 10 (20%) were of the high economic status.

## CROSS TABULATION ON RELATIONSHIP AMONG ECONOMIC STATUS AND DEMOGRAPHIC VARIABLES

**Table 4: Respondents' economic status in relation to sex**

(n=50)

ECONOMIC STATUS	SEX		
	Male	Female	Total
Low	9 (32%)	19 (68%)	28 (100%)
Medium	4 (36%)	7 (64%)	11 (100%)
High	2(18%)	9 (82%)	11 (100%)
<b>Total</b>	<b>15</b>	<b>35</b>	<b>50</b>

Majority of the respondents of low economic status were females 19(68%). Also those who had medium economic status majority were females 7(64%), while those in high economic status had females in majority 9 (82%) too.

**Table 5: Respondent's economic status in relation to age**

(n=50)

ECONOMIC STATUS	AGE					
	18-25 Years	26-33 Years	31-34 Years	42-49 Years	50and Above	Total
Low	1(4%)	5 (18%)	10 (35%)	7 (25%)	5 (18%)	28 (100%)
Medium	3(27.3%)	2 (18.2%)	3 (27.3%)	1 (9%)	2 (18.2%)	11(100%)
High	1(9%)	2 (18.2%)	5 (45.5%)	3 (27.3%)	0 (0%)	11(100%)
<b>Total</b>	<b>5</b>	<b>9</b>	<b>18</b>	<b>11</b>	<b>7</b>	<b>50</b>

Majority of the respondents 10 (35%) aged 31-34 years had low economic status. Three (27.35%) 18-25 years had medium economic status while 5 (45.5%) aged 31-34 years had high economic status.

**Table 6: Respondents economic status in relation to denomination****(n=50)**

<b>Economic Status</b>	<b>Denomination/Religion</b>							<b>Total</b>
	<b>Salvation Army</b>	<b>SDA</b>	<b>Roman Catholic</b>	<b>UCZ</b>	<b>Jehovah's Witnesses</b>	<b>New Apostolic Faith Church</b>	<b>PAOG</b>	
Low	9(32.1%)	9(32.1%)	4(14.3%)	1(3.6%)	1(3.6%)	4(14.3%)	0 (0%)	28 (100%)
Medium	5 (45.5%)	3(27.3%)	2(18.2)	1 (9%)	0 (0%)	0 (0%)	0 (0%)	11(100%)
High	2 (18.2)	1(9.1 %)	2 (18.2)	2 (18.2)	1(9.1 %%)	2 (18.2)	1 (9%)	11 (100%)
<b>Total</b>	<b>16</b>	<b>13</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>50</b>

Nine (32.1 %) of the respondents belonging to Salvation Army and SDA had low economic status while 2 (18.2%) belonging to Roman Catholic, UCZ and New Apostolic Faith church had high economic status.

**Table 7: respondents' economic status in relation to level of education****(n=50)**

<b>Economic Status</b>	<b>Level of Education</b>				<b>Total</b>
	<b>None</b>	<b>Primary Education</b>	<b>Secondary Education</b>	<b>University/College Education</b>	
Low	10 (36%)	15 (54%)	3 (10. %)	0 (0 %)	28 (100%)
Medium	5 (45.4%)	4 (36.3%)	1 (9.1%)	1 (9.1%)	11 (100)
High	0 (0%)	6 (54.5%)	3 (27.2%)	2 (18.2%)	11 (100%)
<b>Total</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>3</b>	<b>50</b>

The table shows that among the respondents with low economic status, majority 15(54%) who attained primary education had low economic status, while 6 (54.5%) of the respondents who attained primary education had high economic status.

**Table 8: Respondents economic status in relation to marital status****(n=50)**

<b>Economic Status</b>	<b>Marital Status</b>					<b>Total</b>
	<b>Single</b>	<b>Married</b>	<b>Divorced</b>	<b>Widow/ Widower</b>	<b>Co-Habiting</b>	
Low	0 (0%)	19 (68%)	5 (18%)	3 (11%)	1(3%)	28 (100%)
Medium	1 (9.1%)	5 (45.5%)	3 (27.2)	2 (18.2%)	0 (0%)	11 (100%)
High	3 (27.2%)	5 (46%)	1 (9.1)	2 (18.2%)	0 (0%)	11 (100%)
<b>Total</b>	<b>2</b>	<b>29</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>50</b>

The table shows that majority of the respondents 19 (68%) with low economic status were married and results also show that among the respondents in high economic status, majority were married 5 (46%).

**Table 9: Respondents' economic information in relation to occupation****(n=50)**

<b>Economic Status</b>	<b>Occupation</b>				<b>Total</b>
	<b>Employed Full Time</b>	<b>Employed Part-Time</b>	<b>Business/Self Employed</b>	<b>Unemployed</b>	
Low	3 (11)	0 (0%)	2 (7%)	23 (82)	28 (100%)
Medium	2 (18.2%)	2 (18.2%)	1(9.1%)	6(54.5%)	11 (100%)
High	5 (45.5)	0 (0%)	3 (27.2%)	3 (27.2%)	11 (100%)
<b>Total</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>32</b>	<b>50</b>

The table shows that majority 23 (82%) of the respondents who were unemployed had low economic status, while 5 (45.5%) who were employed full time were in the category of high economic status.

## SECTION C:

### 4.2.3 KNOWLEDGE ON ADHERENCE TO ARV DRUGS

#### FREQUENCIES ON KNOWLEDGE OF ADHERENCE TO ART

**TABLE 10: Respondents Awareness on what ARV drugs are**

<b>Purpose of ARV Drugs</b>	<b>Frequency</b>	<b>Percentage</b>
Curing HIV	0	0
Reducing pain	0	0
Reducing progression of HIV	48	96
I don't know	2	4
<b>Total</b>	<b>50</b>	<b>100</b>

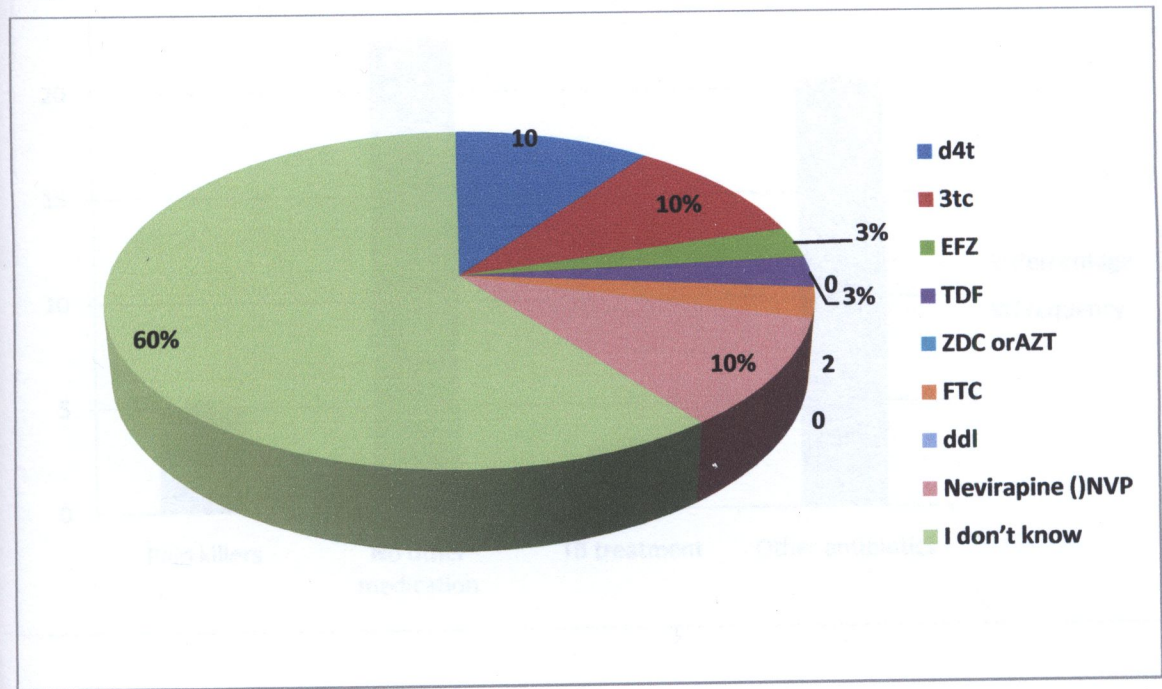
Majority of the respondents 48 (98 %) knew that the ARV drugs are used for reducing progression of HIV while only 2 (4%) did not know the purpose of ARV drugs.

**Table 11: Respondent's ability to follow ART therapy regimen**

<b>Ability to follow ART regimen</b>	<b>Frequency</b>	<b>Percent</b>
No	1	2
Yes	49	98
<b>Total</b>	<b>50</b>	<b>100</b>

Almost all the respondents 49 (98 %) were able to follow the ART regimen properly while only 1 (2%) reported inability to follow the regimen.

Figure 8: Respondents' knowledge of drugs they were taking



Majority of the respondents 41 (60%) did not know the drugs they were taking and only 2(3%) knew the drug they were taking.

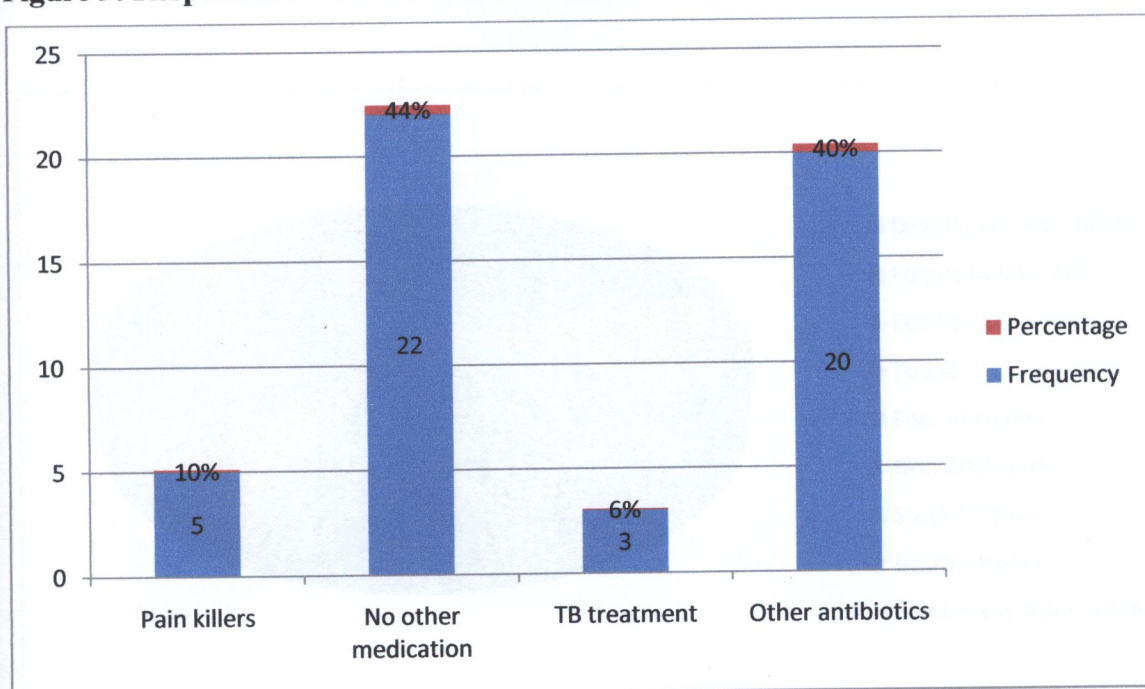
Table 12: Respondents knowledge on length of taking their medication

Knowledge on duration of taking ART drugs	Frequency	Percent
For life	49	98
For some years	1	2
Total	50	100

Majority of the respondents 49 (98%) were aware that they are supposed to take their ART medication for life, while 1 (2%) respondent stated that the ARVs were to be taken for a certain period of time.



**Figure 9: Respondents' other treatment taken besides ART**



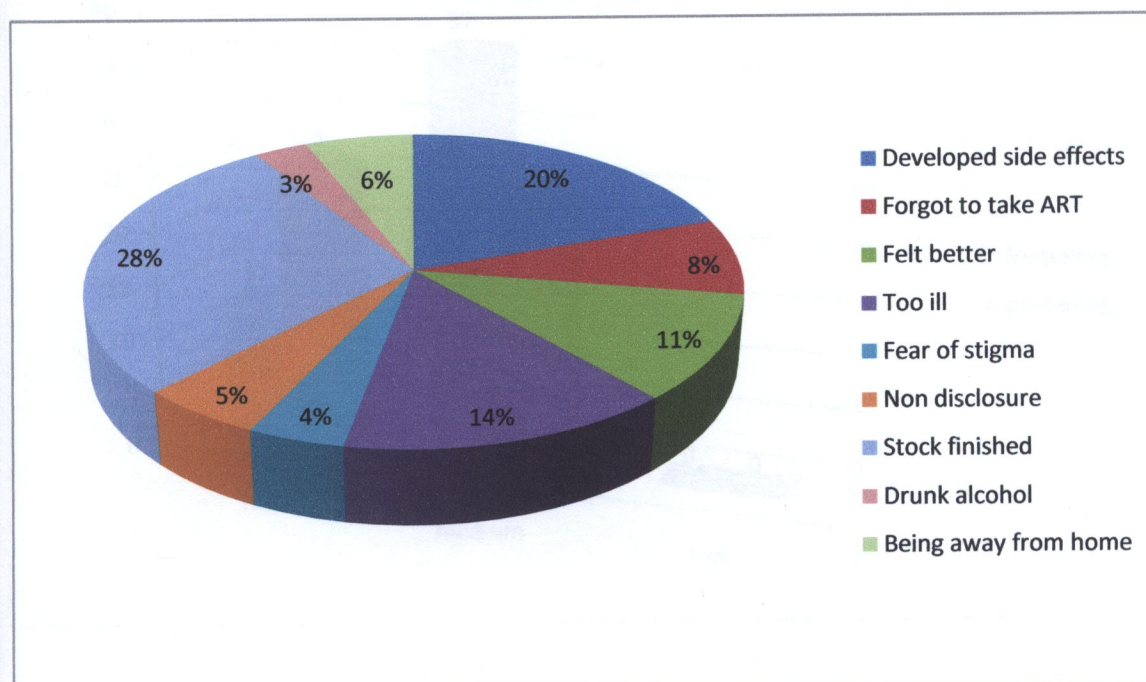
Twenty two (44%) of the respondents were not on any other medication, 20 (40%) were on antibiotics, 5 (10) on pain killers (Analgesics) and 3 (6%) were on TB treatment.

**Table 13: Respondents' duration of missing treatment**

Duration	Frequency	Percent
Less than one month	45	90
More than one month	5	10
<b>TOTAL</b>	<b>50</b>	<b>100</b>

Majority of the respondents 45 (90%) missed taking their treatment for less than one month while 5 (10%) missed taking their ARV drugs for more than a month.

**Figure 10: Reasons that led to respondent's failure to take their ARV tablets**



Respondents had various reasons that made it hard for them to take their medication as required. Forty seven (28%) of the respondents stated that the most difficult was not having the drugs, 33(20%) was as a result of developing side effects, 28(14%) being too ill while 5 (3%) stated that it was due to having drunk alcohol.

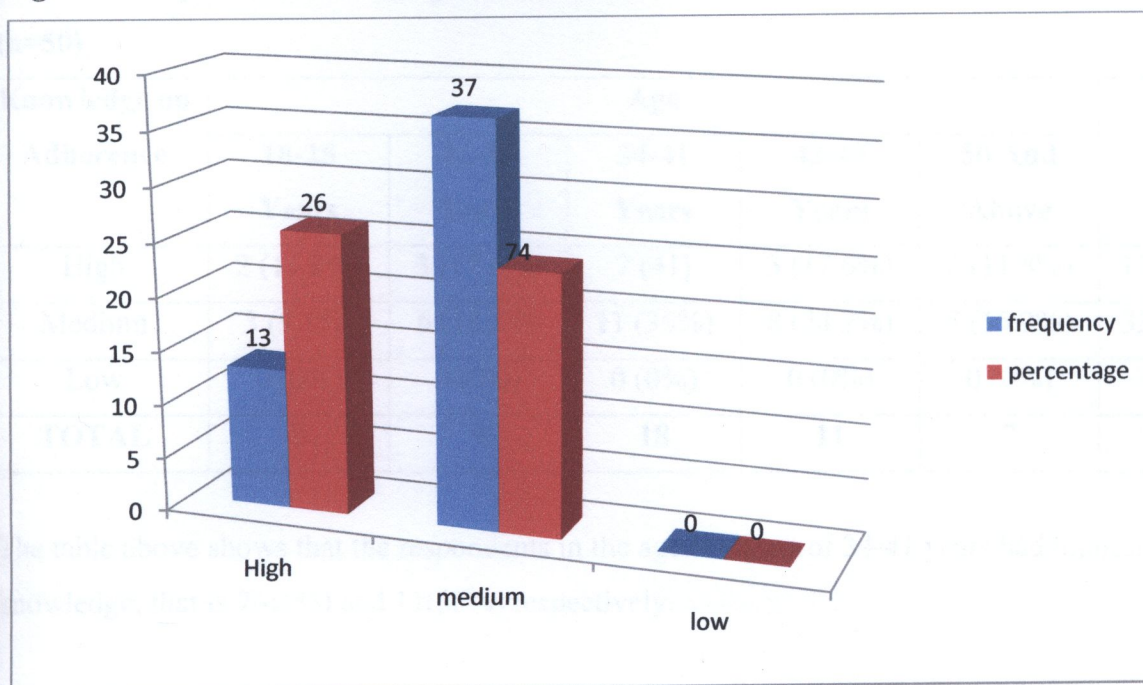
**Table 14: Benefits that respondents gained from taking ARV drugs**

Benefits of taking ARVs	Frequency	Percent
Improves quality of life	3	6
Reduces morbidity	0	0
Suppression of viral load	47	94
Reducing pain	0	0
<b>Total</b>	<b>50</b>	<b>100.</b>

Majority of the respondents 47 (94%) stated that the ARV drug suppress viral load and 3 (6%) stated that ARV drugs improve quality of life.



**Figure 11: Level of knowledge on adherence to ART**



Majority of the respondents 37 (74%) had medium knowledge on adherence to ART while, only 13 (26%) had high knowledge on adherence to ART

### CROSS TABULATION ON RELATIONSHIPS BETWEEN KNOWLEDGE ON ADHERENCE AND DEMOGRAPHIC VARIABLES

**TABLE 15: Respondents' knowledge on adherence to ART in relation to sex**  
(n=50)

Knowledge On Adherence	Sex		Total
	Male	Female	
High	6 (35.3%)	11 (64.7%)	17 (100%)
Medium	9 (27.3%)	24 (73%)	33 (100%)
Low	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>15</b>	<b>35</b>	<b>50</b>

The table above shows that female respondents 11(64%) and 24(73%) had high and medium knowledge respectively

**Table 16: Respondents knowledge on adherence to ART in relation to age**  
(n=50)

Knowledge on Adherence	Age					Total
	18-25 Years	26-33 Years	34-41 Years	42-49 Years	50 And Above	
High	2 (11.8%)	3 (17.6%)	7 (41)	3 (17.6%)	2 (11.8%)	17 (100%)
Medium	3 (9.1%)	6 (18.2 %)	11 (35%)	8 (24.2%)	5 (15.2%)	33 (100%)
Low	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>TOTAL</b>	<b>5</b>	<b>9</b>	<b>18</b>	<b>11</b>	<b>7</b>	<b>50</b>

The table above shows that the respondents in the age category of 34-41 years had highest levels of knowledge, that is 7(41%) and 11(35%) respectively.

**Table 17: Respondents’ knowledge on adherence to ART in relation to denomination**  
(n=50)

Knowledge on Adherence	Denomination							Total
	Salvation Army	SDA	Roman Catholic	UCZ	Jehovah’s Witnesses	New Apostolic Faith Church	PAOG	
High	3 (15.8%)	6 (32%)	2 (10.5%)	2 (10.5%)	1 (5.3%)	5 (26.3%)	0 (0%)	19 (100%)
Medium	13 (43%)	7(22%)	6 (19.4%)	2 (7%)	1 (3%)	1 (3%)	1 (3%)	31(100%)
Low	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>TOTAL</b>	<b>16</b>	<b>13</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>50</b>

The table shows that in the category of high knowledge, SDA respondents scored highest 6(32%), medium knowledge Salvation Army 13(43%) while there was no respondents who scored low.

**Table 18: Respondents' knowledge on adherence to ART in relation to level of education**  
(n =50)

Knowledge on Adherence	Level of Education				Total
	None	Primary education	Secondary education	University/College education	
High	2 (11.8%)	8 (47%)	4 (23.5)	3 (17.6)	17 (100%)
Medium	13 (39.4%)	17 (52%)	3 (9.1%)	0 (0%)	33 (100%)
Low	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
<b>Total</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>3</b>	<b>50</b>

The table shows that the respondents who attained primary education 8(47%) and 17(52%) had high and medium knowledge respectively, and no respondents scored low.

**Table 19: Respondents' knowledge on adherence to ART in relation to marital status**  
(n=50)

Knowledge On Adherence	Marital Status					Total
	Single	Married	Divorced	Window/ Widower	Co-Habiting	
High	4 (23.5%)	8 (47%)	1(5.9)	4 (23.5%)	0 (0%)	17 (100%)
Medium	0 (0%)	21 (64%)	8 (24.2%)	3 (9.1 %)	1 (3%)	33 (100%)
Low	0 (0%)	0 (0%)	0 (0%)	0 (%)	0 (0%)	0 (0%)
<b>Total</b>	<b>4</b>	<b>29</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>50</b>

The table shows that the respondents who were married 8 (47%) and 21(64%) had high and medium knowledge respectively, while no respondents had low knowledge.

**Table 20: Respondents' knowledge on adherence to ART in relation to education**

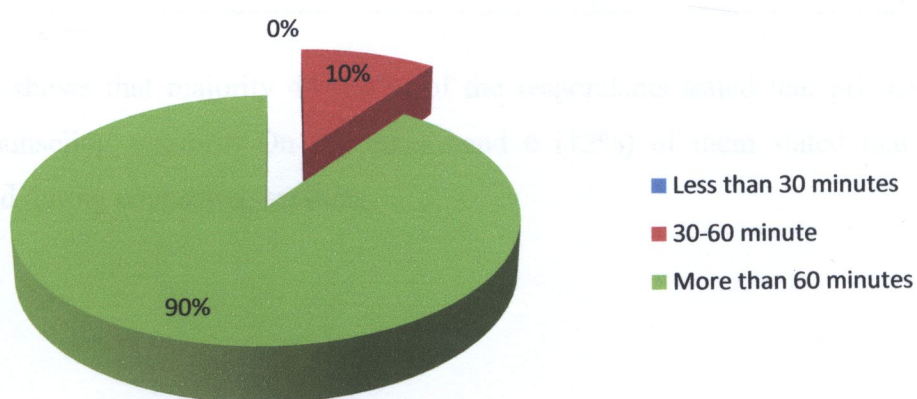
(n=50)

Knowledge on Adherence	Occupation				Total
	Employed Full Time	Employed Part Time	Business Self-Employed	Unemployed	
High	6 (35%)	1(6%)	4 (24%)	6 (35%)	17 (100%)
Medium	4 (12.1%)	1 (3%)	2 (6.1%)	26 (79%)	33 (100%)
Low	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (%)
<b>Total</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>32</b>	<b>50</b>

The table shows that the respondents who were employed full time 6(35%) had high knowledge. Among the respondents who were unemployed 6(35%) and 26(79%) had high and medium knowledge respectively, while no respondent scored low.

#### 4.2.4 PRACTICW OF HEALTH CARE PROVIDERS/COUSELLING

**Figure 12: Respondents waiting time at ART clinic**



Majority of the respondents 45 (90%) stated that they had to wait for more than 60 minutes at the ART clinic before they were attended to and 5 (10%) respondents said they had to wait for 30-60 minutes while no respondent waited for less than 30 minutes.

**Table 21: Response on how often the respondents received adherence counselling**

Frequency of Counselling	Frequency	Percent
Always	6	12
Sometimes	44	88
<b>Total</b>	<b>50</b>	<b>100</b>

Majority of the respondents 44 (88%) said they received adherence counseling occasionally while 6 (12%) stated that they always received adherence counseling each time they visited the ART clinic.

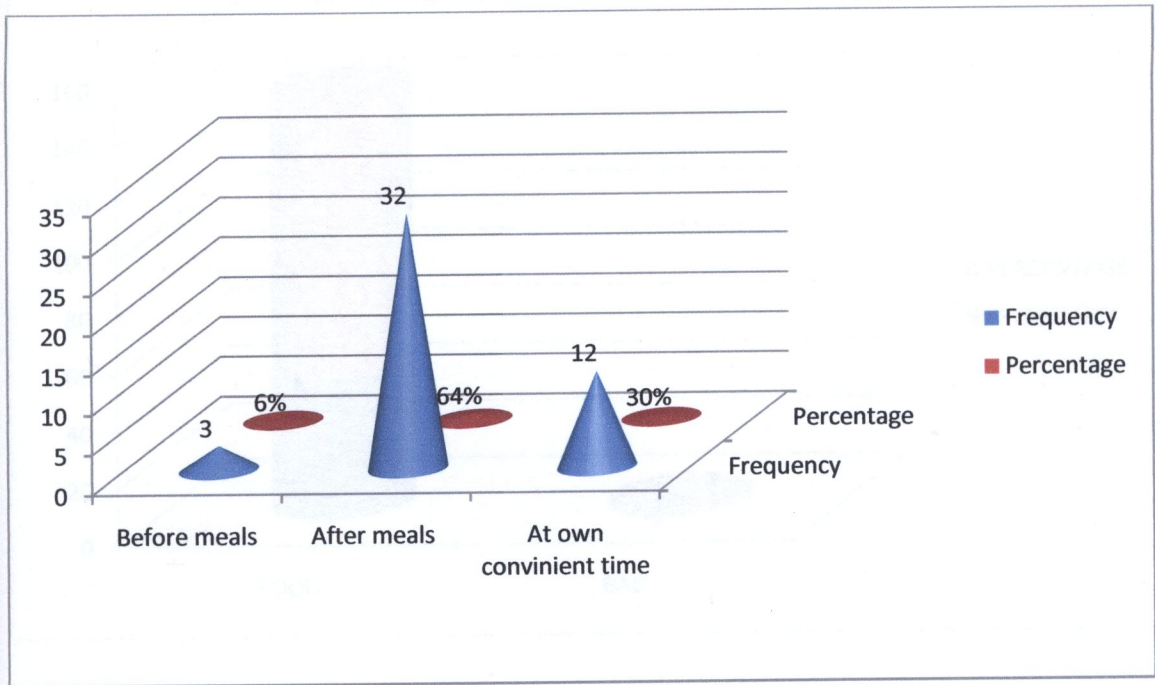
**Table 22: Respondents view on maintenance of privacy during counseling**

Privacy	Frequency	Percent
No	6	12
Yes	44	88
<b>Total</b>	<b>50</b>	<b>100</b>

The table shows that majority 44 (88%) of the respondents stated that privacy was maintained during counseling sessions. On the other hand 6 (12%) of them stated that privacy was not maintained during counseling sessions.



**FIGURE 13: RESPONDENT'S RESPONSE ON THE TIME OF TAKING THEIR DRUGS**



Majority of the respondents 32 (64%) stated that they took their drugs after having their meals. On the other hand 3 (6%) of the respondents took their drugs before having their meals while 15 (30%) of them stated that they took their medication at their own convenient time.

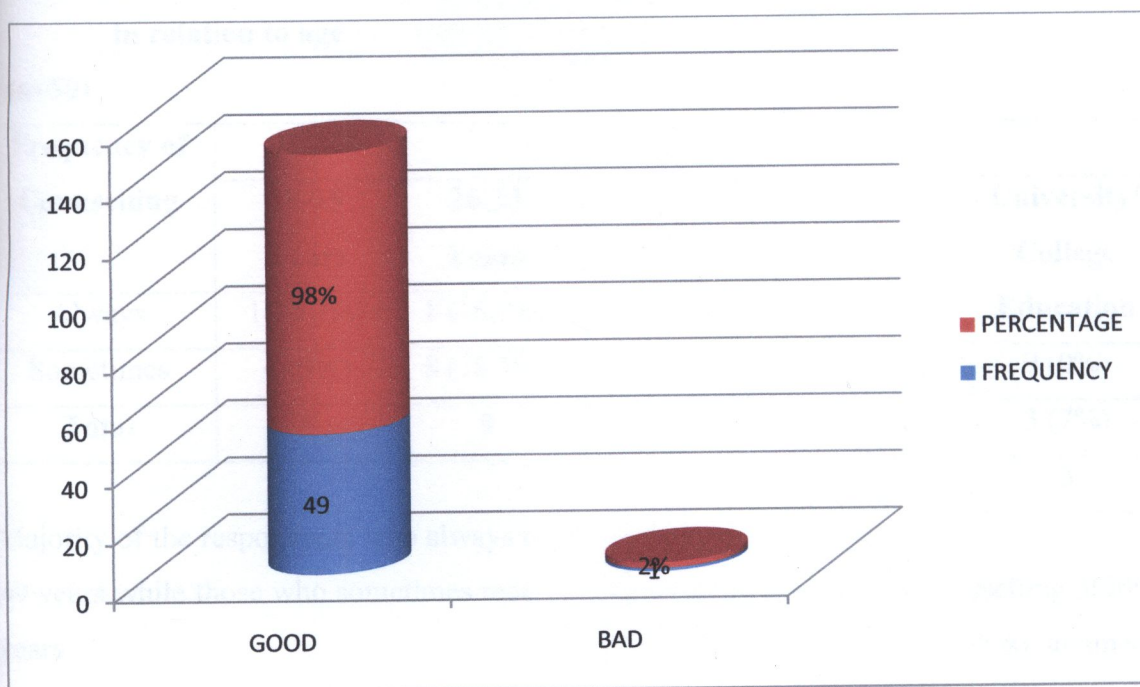
**DEMOGRAPHIC VARIABLES**

**Table 13: Frequency of counselling received by respondents during antenatal visits in relation to**

Frequency of Counselling	Sex		Total
	Male	Female	
Always	1 (10.7%)	3 (43.3%)	4 (100%)
Sometimes	14 (29.6%)	10 (10.5%)	24 (100%)
Total	15	13	28

Among the respondents who always received counselling, majority 5(83%) were females. Although the same group (females) showed the highest numbers among those who sometimes received counselling were 10(65%).

**FIGURE 14: TOTAL LEVEL OF PRACTICE**



The table shows that majority of the respondents 49 (98%) had good practice while, only 1 (2%) had bad practice

### CROSS TABULATION ON RELATIONSHIPS AMONG PRACTICE AND DEMOGRAPHIC VARIABLES.

**Table 23: Frequency on counselling received by respondents during art visits in relation to sex**  
(n=50)

Frequency of Counselling	Sex		Total
	Male	Female	
Always	1 (16.7%)	5 (83.3%)	6 (100%)
Sometimes	14 (3%2)	30 (68%)	44 (100%)
<b>Total</b>	<b>15</b>	<b>35</b>	<b>50</b>

Among the respondents who always received counseling, majority 5(83%) were females. Although the same group (females) showed the highest numbers among those who sometimes received counseling were 30(68%).

**Table 24: Frequency of counselling received by respondents at ART clinic during their visits in relation to age**

(n=50)

Frequency of Counselling	Age					Total
	18-25 Years	26-33 Years	34-41 Years	42-49 Years	50 And Above	
Always	1(16.7%)	1 (16.7%)	1 (16.7%)	3 (50%)	0 (0%)	6 (100%)
Sometimes	4 (9%)	8 (18.2%)	17 (39%)	8 (18.2%)	7 (16%)	44 (100%)
<b>Total</b>	<b>5</b>	<b>9</b>	<b>18</b>	<b>11</b>	<b>7</b>	<b>50</b>

Majority of the respondents who always received counseling 3(50%) were in the age category 42-49 years while those who sometimes received counseling 17(39%) were in the age category 34-41 years

**Table 25: Frequency of Counselling received by respondents during ART visit to the Clinic In Relation To Denomination/Religion**

(n=50)

Frequency of Counselling	Denomination							Total
	Salvation Army	SDA	Roman Catholic	UCZ	Jehovah's Witnesses	New Apostolic Faith	PAOG	
Always	2 (33%)	2 (33%)	0 (0%)	1(17%)	0 (0%)	1(17%)	0 (0%)	6 (100%)
Sometimes	14 (32%)	11 (25%)	8 (18%)	3 (7%)	2 (5%)	5 (11%)	1 (2%)	44 (100%)
<b>Total</b>	<b>16</b>	<b>13</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>50</b>

Among the respondents who always received counseling 2(33%) and 2 (33%) belonged to Salvation Army and SDA respectively. Among those who sometimes received counselling, the highest number belonged to Salvation Army 14(32%).



**Table 26: Respondent's frequency of counselling received during ART clinic visits in relation to level of education**

(n=50)

Frequency of Counselling	Level of Education				Total
	None	Primary Education	Secondary Education	University/ College Education	
Always	3 (50%)	1 (16.7%)	2 (33.3%)	0 (0%)	6 (100%)
Sometimes	12 (27.2%)	24 (55%)	5 (11%)	3 (7%)	44 (100%)
<b>Total</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>3</b>	<b>50</b>

The table shows that majority of the respondents who always received counselling 3(50%) had no education while among those who sometimes received counselling 24(55%) attained primary education.

**Table 27: Frequency of counselling received by respondents during art visits to the clinic in relation to marital status**

(n=50)

Frequency of Counselling	Marital Status					Total
	Single	Married	Divorced	Widow/ Widower	Co-Habiting	
Always	0 (0%)	4 (66.6%)	1 (16.7%)	1 16.7%	0 (0%)	6 (100%)
Sometimes	4 (9%)	25 (57%)	8 (18%)	6 (13.6%)	1 (2.2%)	44 (100%)
<b>TOTAL</b>	<b>4</b>	<b>29</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>50</b>

The table shows that majority of the respondents 4 (66%) who always received counseling were married. On the other hand among those who sometimes received counselling 25(57%), the same group (married) showed the highest number

**Table 28: Frequency of counselling received by respondents during ART visits to the clinic in relation to occupation**

(n=50)

Frequency of Counselling	Occupation				Total
	Employed Full Time	Employed Part Time	Business/ Self-Employed	Unemployed	
Always	2 (33%)	11 (17%)	0 (0%)	3 (50%)	6(100%)
Sometimes	8 (18%)	1 (2%)	6 (14%)	29 (66%)	44(100%)
<b>Total</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>32</b>	<b>50</b>

The table shows that the respondents who always received counseling 3(50%) were unemployed. The sane group (unemployed) scored the highest among those who sometimes received counseling 29(66%).

#### 4.2.5 FREQUENCIES ON ATTITUDE OF RESPONDENTS TOWARDS ART

**Table29: Respondents reaction towards friends and relatives due to the illness.**

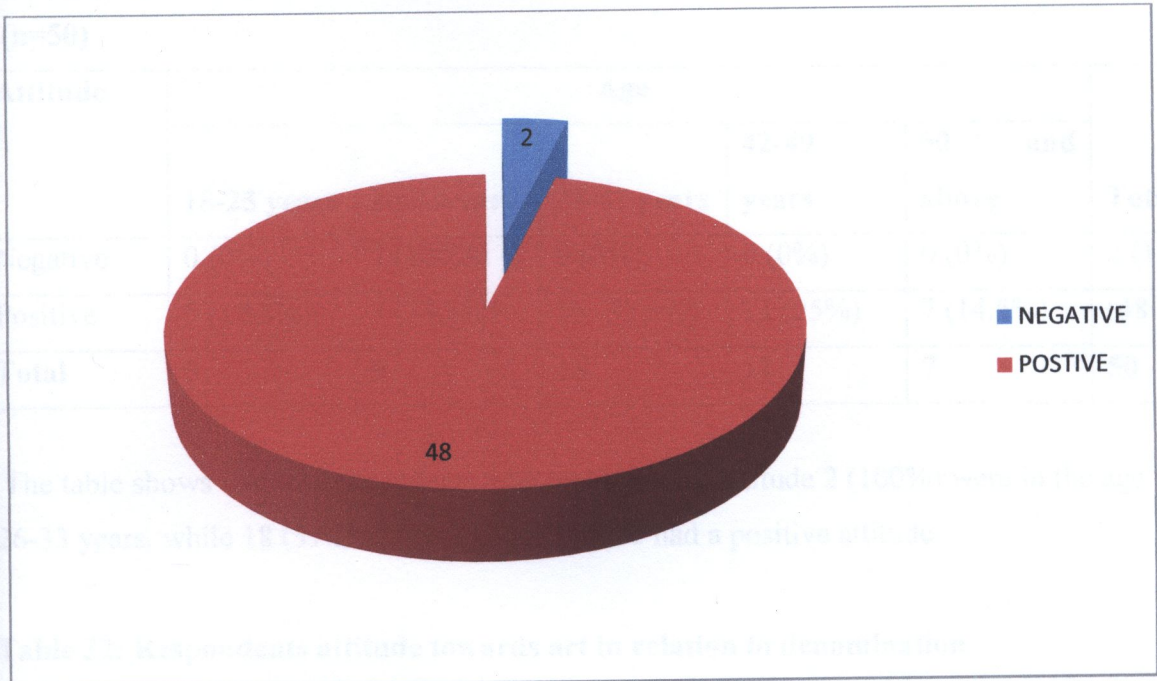
(n=50)

Avoid Friends/Relatives	Frequency	Percent
No	47	94
Yes	3	4
<b>Total</b>	<b>50</b>	<b>100</b>

Majority of the respondents 47 (94%) stated that they did not avoid their friends or relatives due to their illness while 2(4%) stated that they avoided their relatives and friends because of their illness.

4.2.5. ATTITUDE TOWARDS ART

FIGURE 15: Attitude towards ART



Majority of the respondents 48 (96%) had a positive attitude towards ART, while only 2(4%) had a negative attitude towards ART.

CROSS TABULATION ON RELATIONSHIPS AMONG ATTITUDE AND DEMOGRAPHIC VARIABLES

Table 30: Respondents' attitude towards ART in relation to sex  
(n=50)

ATTITUDE	SEX		TOTAL
	Male	Female	
Negative	0 (0%)	2 (100%)	2 (100%)
Positive	14 (30%)	33 (70%)	47 (100%)
TOTAL	15	35	50

Although females were the only ones with a negative attitude, they were the majority of those with positive attitude 33(70%).

Table 31: Respondents’ attitude toward art in relation to age

(n=50)

Attitude	Age					Total
	18-25 years	26-33years	34-41 years	42-49 years	50 and above	
Negative	0 (0%)	2 (100%)	0 (0%)	0 (0%)	0 (0%)	2 (100%)
Positive	5 (10.4%)	7 (14.5%)	18 (37.5%)	11 (25%)	7 (14.5%)	(48 100%)
Total	5	9	18	11	7	50

The table shows that the respondents who had negative attitude 2 (100%) were in the age category 26-33 years, while 18 (37.5%) of those aged 34-41 had a positive attitude

Table 32: Respondents attitude towards art in relation to denomination

(n=50)

Attitude	Denomination							Total
	Salvation Army	SDA	Roman Catholic	UCZ	Jehova’s Witness	New Apostolic Faith	PAOG	
Negative	1 (50%)	0 (0%)	1 (50%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (100%)
Positive	15 (31%)	13 (27%)	7 (14.5%)	4 (9.1%)	2 (4%)	6 (12.5%)	2(4%)	48 (100%)
Total	16	13	8	4	2	6	2	50

Majority of the respondents with positive attitude, were from Salvation Army

**Table 33: Respondents attitude towards art in relation to level of education****(n=50)**

<b>Attitude</b>	<b>Level of Education</b>				<b>Total</b>
	<b>None</b>	<b>Primary Education</b>	<b>Secondary Education</b>	<b>University/College Education</b>	
Negative	0 (100%)	0 (0%)	1 (100%)	0 (0%)	2 (100%)
Positive	14 (29%)	25 (52%)	6 (13%)	3 (6%)	48
<b>Total</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>3</b>	<b>50</b>

The table shows that majority of the respondents with positive attitude had attained primary education.

**Table 34: Respondents' attitude towards art in relation to marital status****(n=50)**

<b>Attitude</b>	<b>Marital Status</b>					<b>Total</b>
	<b>Single</b>	<b>Married</b>	<b>Divorced</b>	<b>Widow/ Widower</b>	<b>Co- Habiting</b>	
Negative	0 (0%)	0 (0%)	1 (50%)	0 (0%)	1 (50%)	2 (100%)
Positive	4 (8%)	29 (60%)	8 (17%)	7 (15)	0 (0%)	48 (100%)
<b>Total</b>	<b>4</b>	<b>29</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>50</b>

Majority of the respondents 29 (60%) who were married, had a positive attitude towards ART

**Table 35: Respondents' attitude towards art in relation to occupation**

(n=50)

Attitude	Occupation				Total
	Employed Full Time	Employed Part Time	Business/ Self-Employed	Unemployed	
Negative	0 (0%)	0 (0%)	1 (50%)	1 (50%)	2 (100%)
Positive	10(21%)	2 (4%)	5 (10%)	31 (65%)	48 (100%)
<b>Total</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>32</b>	<b>50</b>

The table shows that amongst the respondents with positive attitude, majority were unemployed 31(65%)

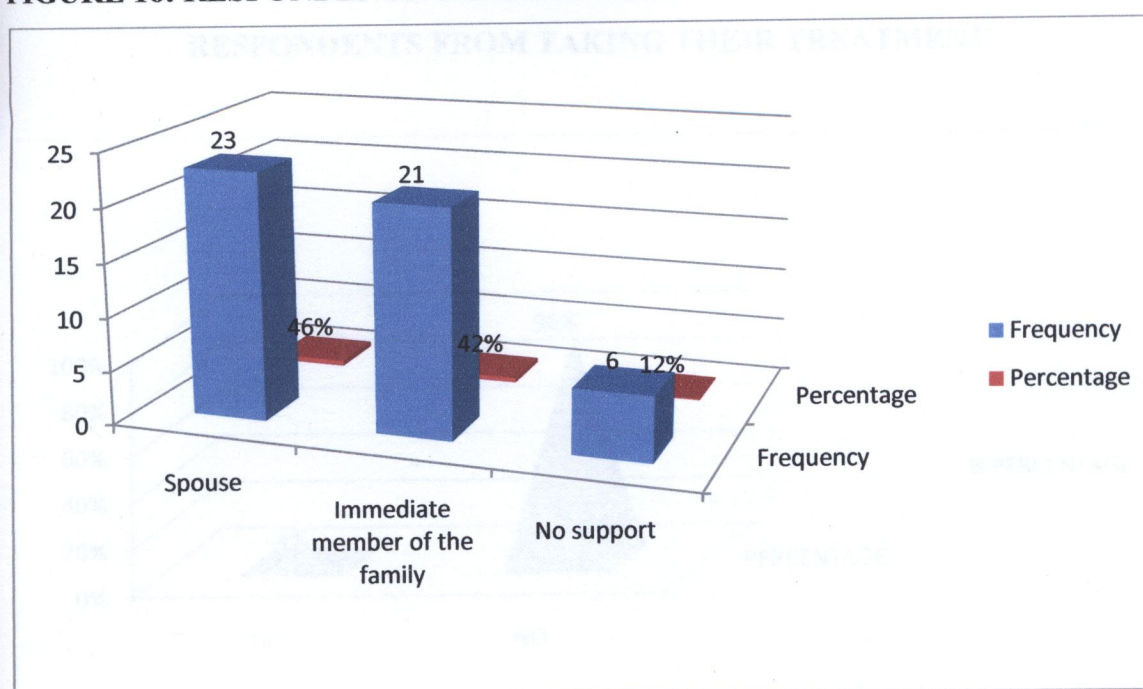
#### 4.2.6 FREQUENCIES ON RESPONDENTS' FAMILY SUPPORT

**Table 36: Response on whether the respondents had family support**

Family Support	Frequency	Percent
No	6	12
Yes	44	88
<b>Total</b>	<b>50</b>	<b>100</b>

Majority of the respondents 44 (88%) stated that they had support from their family members while 6 (12 %) stated that they had no support from their family members.

**FIGURE 16: RESPONDENTS' SUPPORT PERSON**



Majority of the respondents stated that they had either their spouse 23(46%) or immediate family member 21(42%) to support them in their treatment. Only 6(12%) reported having no one to support them.

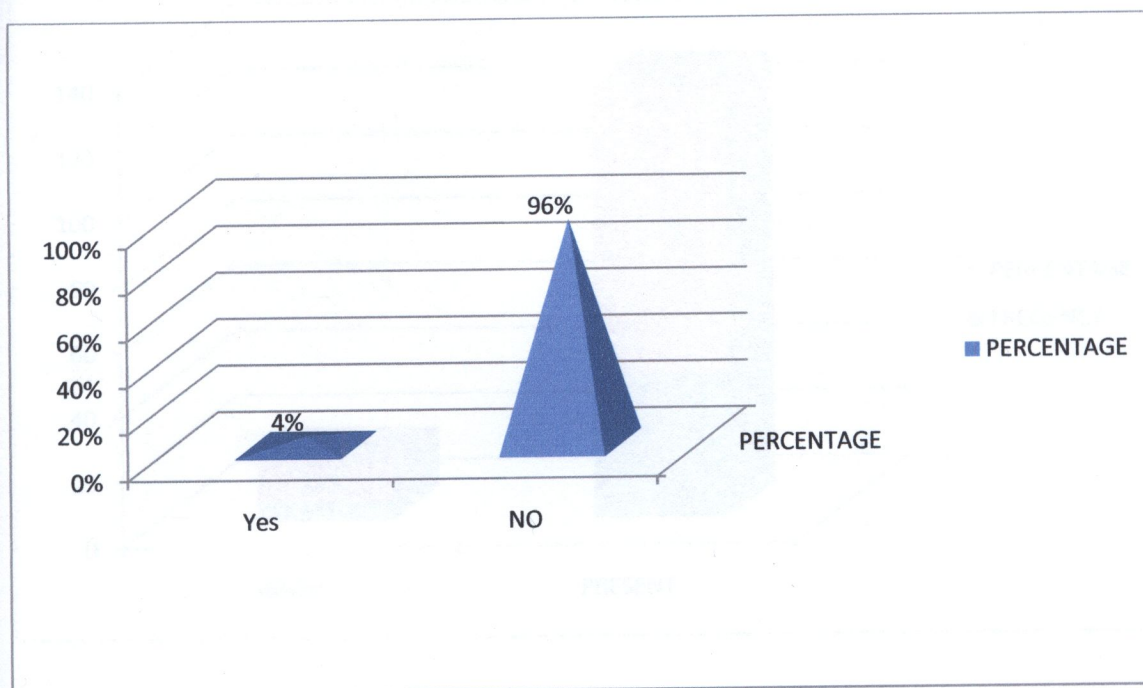
**Table 37: Response on social-cultural factors that could hinder the respondents from following treatment**

Social-cultural Factors	Frequency	Percent
Preference to traditional medicine	3	6
Nothing	47	94
<b>Total</b>	<b>50</b>	<b>100</b>

Majority of the respondents 47 (94%) stated that they had no social-cultural factors that could hinder them from taking their ART treatment while 3 (6%) admitted that they had some social cultural factors that would hinder them from following the treatment



**FIGURE 17: RESPONSES ON FAMILY PROBLEMS THAT HINDERED RESPONDENTS FROM TAKING THEIR TREATMENT**



Majority of the respondents 48 (96%) stated that they did not have any problems in the family that could hinder them from taking their treatment properly while 2 (4%) stated that they had some family problems that hindered them from taking the treatment properly.

#### DEMOGRAPHIC VARIABLES

**Table 38: Family support in relation to respondents' sex**

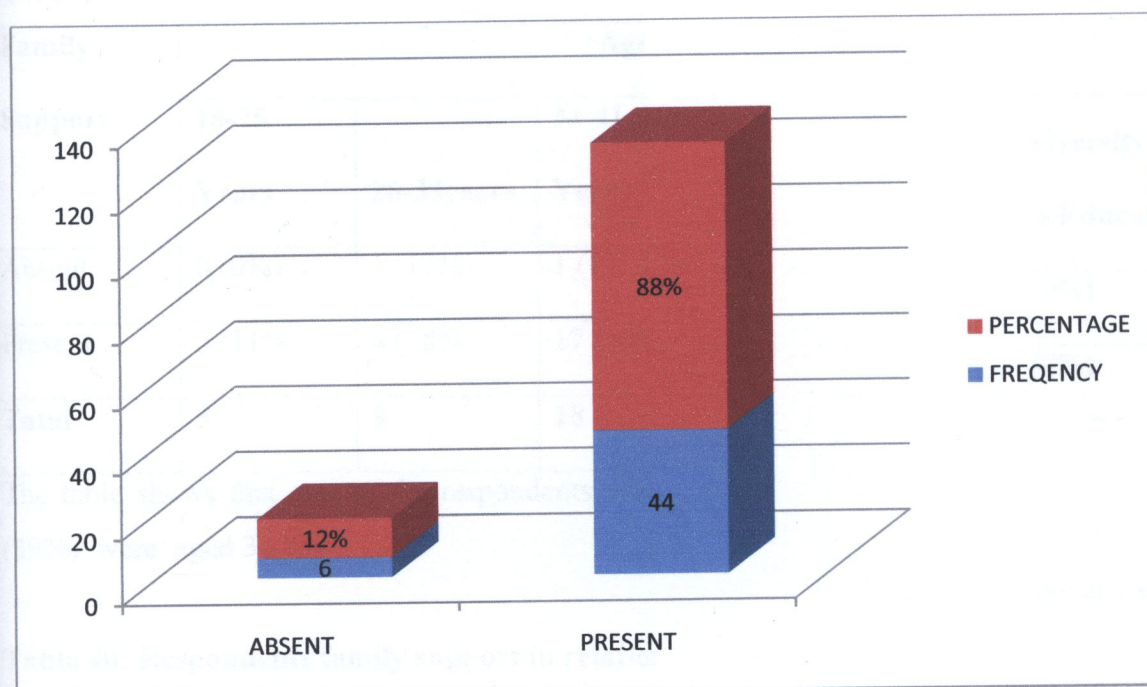
(n=58)

Family support	Male	Female	Total
Absent	1 (2%)	1 (0%)	2 (3%)
Present	14 (24%)	30 (52%)	44 (76%)
Total	15	31	46

The table shows that among the respondents who reported having family support, majority 30 (68%) were females.



**FIGURE 18: LEVEL OF FAMILY SUPPORT**



The table shows that majority of the respondents 44 (88%) had family support to help in their treatment while, 6 (12%) of them did not.

### CROSS TABULATION ON RELATIONSHIPS AMONG FAMILY SUPPORT AND DEMOGRAPHIC VARIABLES.

**Table 38: Family support in relation to respondents' sex**  
(n=50)

Family Support	Sex		Total
	Male	Female	
Absent	1 (16.7)	5 (83%)	6 (100%)
Present	14 (32%)	30 (68%)	44 (100%)
<b>Total</b>	<b>15</b>	<b>35</b>	<b>50</b>

The table shows that among the respondents who reported having family support, majority 30 (68%) were females.

**Table 39: Family support in relation to age****(n=50)**

<b>Family Support</b>	<b>Age</b>					<b>Total</b>
	<b>18-25 Years</b>	<b>26-33years</b>	<b>34-41 Years</b>	<b>42-49 Years</b>	<b>50 and Above</b>	
Absent	0 (0%)	1 (17%)	1 (17%)	0 (0%)	4 (66 %)	6 (100%)
Present	5 (11%)	8 (18%)	17 (39%)	1 (25%)1	3 (7%)	44 (100%)
<b>Total</b>	<b>5</b>	<b>9</b>	<b>18</b>	<b>11</b>	<b>7</b>	<b>50</b>

The table shows that among the respondents who reported having family support, majority 17 (39%) were aged 34-41.

**Table 40: Respondents family support in relation to Denomination****(n=50)**

<b>Family Support</b>	<b>Denomination</b>							<b>Total</b>
	<b>Salvation Army</b>	<b>SDA</b>	<b>Roman Catholic</b>	<b>UCZ</b>	<b>Jehova's Witness</b>	<b>New Apostolic Faith</b>	<b>PAOG</b>	
Absent	3 (42.3%)	1 (14.3%)	1 (14.5%)	1 (14.3%)	0 (0%)	1 (14.3)	0 (0%)	7 (100%)
Present	13 (30%)	12 (28%)	7 (16%)	3 (7%)	2 (5%)	5 (11.6%)	1 (2%)	43 (100%)
<b>Total</b>	<b>16</b>	<b>13</b>	<b>8</b>	<b>4</b>	<b>2</b>	<b>6</b>	<b>1</b>	<b>50</b>

The table shows that majority of the respondents 13(30%) who reported having support belonged to the Salvation Army.

**Table41: Family support in relation to level of Education**  
(n=50)

FAMILY SUPORT	LEVEL OF EDUCATION				TOTAL
	None	Primary Education	Secondary Education	University/Coll ege Education	
Absent	4 (66.6%)	2 (33.3%)	0 (0%)	0 (0%)	6 (100%)
Present	11 (25%)	23 (52%)	7 (16%)	3 (7%)	44 (100%)
<b>Total</b>	<b>15</b>	<b>25</b>	<b>7</b>	<b>3</b>	<b>50</b>

Majority of the respondents who reported having no support 4 (66%) did not have any education, while 23 (52%) who reported having support attained primary education.

**Table 42: family support in relation to respondent’s marital status**  
(n=50)

FAMILY SUPPORT	MARITAL STATUS					TOTAL
	Single	Married	Divorced	Widow/ Widower	Co-Habiting	
Absent	0 (0%)	0 (0%)	2 (33.3%)	4 (66.7%)	0 (0%)	6 (100%)
Present	4 (9%)	29 (66%)	7 (16%)	3 (7%)	1 (2%)	44 (100%)
<b>Total</b>	<b>4</b>	<b>29</b>	<b>9</b>	<b>7</b>	<b>1</b>	<b>50</b>

The table shows that majority of the respondents who reported not having support were widows/widowers. On the other hand those who reported having more support 29(66%) were married.

**Table 43: Family support in relation to respondent' occupation**

Family Support	Occupation				Total
	Employed Full Time	Employed Part -Time	Business/ Self-Employed	Unemployed	
Absent	0 (0%)	0 (0%)	0 (0%)	6(100%)	6 (100%)
Present	10 (22%)	2 (5%)	6 (14%)	26 (59%)	44 (100%)
<b>Total</b>	<b>10</b>	<b>2</b>	<b>6</b>	<b>32</b>	<b>50</b>

All the respondents who were unemployed reported having no support 6 (100%), although the same group also was the majority among those who reported of having support.

#### 4.2.7. RELATIONSHIPS AMONG VARIABLES

**Table 44: Respondents knowledge on art adherence in relation to their economic status (n=50)**

Economic Information	Knowledge		Total
	HIGH	MEDIUM	
Low	8 (22%)	29 (78%)	37 (100%)
High	9 (69.2% )	1(30.8%)	13 (100%)
<b>Total</b>	<b>17</b>	<b>50</b>	<b>50</b>

The table shows that among respondents with low economic status, majority 29 (78%) had medium knowledge while among those with high economic status 9(69%) had high knowledge.

**Table 45: Respondents’ knowledge on art adherence in relation to their practice**  
**(n=50)**

Practice	Knowledge		Total
	High	Medium	
Good	17 (35%)	32 (65%)	49 (100%)
Bad	0 (0%)	1 (100%)	1 (100%)
<b>Total</b>	<b>17</b>	<b>33</b>	<b>50</b>

Majority of the respondents with good practice 32 (65%) had medium knowledge and only one respondent (100%) with bad practice had medium knowledge as well.

**Table 46: Respondents knowledge on adherence to art in relation to frequency of counselling they received when they visited the art clinic**  
**(n=50)**

Frequency of Counselling	Knowledge		Total
	High	Medium	
Always	0 (0%)	6 (100%)	6 (100)
Sometimes	17 (39%)	27 (61%)	44 (100)
<b>Total</b>	<b>17</b>	<b>33</b>	<b>50</b>

The table shows that among those respondents who always received counselling all of them 6(100%) had medium knowledge while, those respondents who sometimes received counselling 27 (61%) also had medium knowledge.

**Table 47: Respondents’ knowledge on adherence to art in relation to attitude towards art (n=50)**

Attitude	Knowledge		Total
	High	Medium	
Negative	0 (0%)	2 (100%)	2 (100%)
Positive	17 (35%)	31(65%)	48 (100%)
Total	17	33	50

The table shows that the respondents with negative attitude 2 (100%) had medium knowledge. Among those with positive attitude the results show that majority 31 (65%) had medium knowledge.

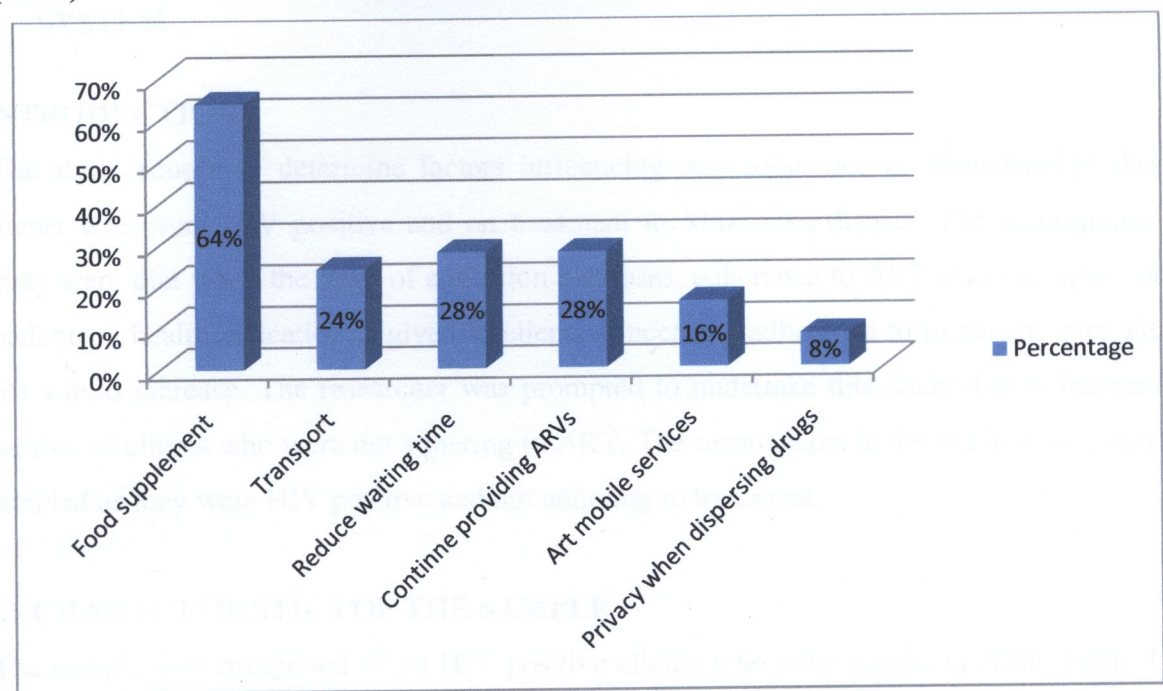
**Table 48: Respondents’ knowledge in relation to family support (n=50)**

Family Support	Knowledge		Total
	High	Medium	
Absent	2 (33%)	4 (67%)	6 (100)
Present	15 (34%)	29 (66%)	44 (100%)
TOTAL	17	33	50

The table shows that majority of the respondents who reported having no support 4 (67%) and those who reported having more support 29 (66%) had medium knowledge respectively.

# 4.2.7 FIGURE 19: SUGGESTED SERVICES TO BE PROVIDED AT ART CLINIC

(n=50)



Majority of the respondents 32 (64%) stated that they wanted to have food supplements provided at the clinic, 12 (24%) transport, 14 (28%) waiting time reduced and continue provision of ARVs. Eight (16%) requested for mobile ART services, while 4(8%) stated that they wanted privacy to be maintained when drugs were being dispersed.

## **CHAPTER FIVE**

### **5.0 DISCUSSION OF FINDINGS AND IMPLICATIONS FOR THE HEALTH CARE SYSTEM**

#### **INTRODUCTION**

The study sought to determine factors influencing non adherence to Antiretroviral therapy in clients who were HIV positive and on treatment in Mazabuka district. The assumptions of the study were that when the level of education increases, adherence to ART also increases and when inadequate health education is given to clients concerning adherence to treatment, non adherence rate would increase. The researcher was prompted to undertake this study due to increase in the number of clients who were not adhering to ART. The respondents in the study were conveniently sampled as they were HIV positive and not adhering to treatment.

#### **5.1 CHARACTERISTICS OF THE SAMPLE**

The sample size comprised of 50 HIV positive clients who were receiving ART. Table 1 shows that majority of the respondents 30(70%) were females while only 15(30%) were males. This could be attributed to the notion that in Zambia, there are more females than males. This is in line with the ZDHS (2007) which revealed that there were more women aged 15-49 years compared to men aged 15- 59 years (ZDHS, 2007).

In figure 1, results show that majority of the respondents 18(36%) were aged between 34-41 years. This statement does not agree with the ZDHS (2007) which states that 50% of the total population is under 15 years of age while 3% is 65 or older.

In figure 2 the results show that 32% of the respondents belonged to Salvation Army Church, 26% SDA, 16% Roman Catholic and 4% belonged to Jehovah's witnesses. No respondent belonged to another religion. All the respondents were Christians. This may be due to the first Christian Missionaries who arrived in Zambia and had an influence to the Zambians. This is also in line with the declaration of Zambia as a Christian nation by the second republican President Dr F.T.J. Chiluba (Phiri, 2003)

In Figure 3 the results show that majority of the respondents 25(50%) attained primary education, while only 3(6%) attained university/college education. This could be attributed to the little



importance rural communities attach to education. Marriages are highly valued hence the tendency to marry off their children than taking them to school. The other contributing factor could be poverty levels. Parents are unable to take their children to school due to poverty even when the child has qualified to go for higher education they cannot afford to pay the school fees as a result the individual ends up with primary level or no education at all. This is in line with ZDHS, (2007), which says, according to the Living Conditions Monitoring Survey 2006, 64 percent of Zambians were classified as poor. Poverty has remained more Prevalent in rural areas than urban areas (80 and 34 percent, respectively) in 2006. Also Zambia embarked on implementing vigorous Structural Adjustment Programmes (SAP) in the 1980s amidst a stagnating economy. The SAP failed to substantially alter the economy and led to increased levels of poverty for the majority of Zambians (ZDHS, 2007).

In figure 4 the results show that majority of the respondents 28(58%) were married. Most respondents could have been married probably due to the fact that in the Zambian context, marriage is considered to be the universally accepted norm. Most women being the majority of the respondents probably view marriage as a social security due to their social vulnerability. According to the ZDHS report, the median age at marriage for women aged 25-49 with no education was 17.3 years compared with 24.4 years for women with more than secondary education. Men enter into first union at a much later age than women; the median age at first marriage for men aged 25-59 was 23.5 years (ZDHS, 2007). Only 1 (2%) were co-habiting, 5(10%) were single, 9(18%) were divorced and 7(14%) were either widows or widower.

Furthermore, majority of the respondents 32(64%) were unemployed as shown in Figure 5. The results may imply that these respondents were engaged in farming since the area is rural and does not have industries where most respondents could be engaged. The findings are supported by Banda, (2005) who stated that majority of the unemployed people were in rural areas.

## **5.2 DISCUSSION OF VARIABLES**

### **5.2.1. ECONOMIC STATUS**

The study revealed that 20% of the respondents had high economic status, 24% had medium economic status while 56% had low economical status. These results could be attributed to the fact that most of the rural population live in poverty. Muchelaka, (2011) stated that most Zambians

especially in rural areas were walloping in abject poverty despite government's claims of improving the economy.

The study made similar observations and noted that, majority of the respondents with high economic status were females 82% while respondents with low economic status were males 32%. The finding could be attributed to the fact that women tend to engage themselves in small businesses in order to improve on their economic status, This statement does not agree with Banda (2011), who said 86 percent of males and 74 percent of females above the age of 15 are unemployed.

Among the respondents who did not attain any educational level, 10(36%) had low economic status while, 6(54.5%) who attained primary education had high economic status (Table 7). The results could be attributed to the fact that those with low education were not employed and did not engage themselves in any form of business in order to improve on their economic status. This statement does not agree with Banda, (2011) who said analysis by employment status and literacy shows that 29 percent of the working persons in the labour force are illiterate while 71 percent are literate.

Table 8 revealed that majority of the respondents 19 (68%) who were married had low economic status (Table 8). The results could be due to the fact that neither of the spouses was in formal employment or involved in any part-time work. This is in line with Lerman (2002) who stated that the low and unstable incomes of potential husbands are another reason why marriage might not improve economic welfare of many mothers and children.

### **5.2.2. KNOWLEDGE**

On the level of education, study shows that 6(35%) of the male respondents had high level of knowledge on adherence to ART (Table 15). This could be due to the fact that the concerned respondents attained secondary or college education and made it easy for them to understand issues concerning HIV/AIDS. This statement is in agreement with Fisher et al 2006 who stated that according to the available evidence suggests that a good level of understanding about HIV/AIDS and awareness of the consequences of non-adherence are associated with good adherence.

The female respondents had medium level of knowledge 24(73%). This could be as a result of clients not always being counseled. This is in line with Table 23 which shows that 83% of the clients sometimes received counselling during their visit to ART clinic. According to a study

conducted by Potchoo et al (2010), it was emphasized that in order for clients to reach optimal adherence level (100%), there is need to improve follow-up for PLWHA with the help of adherence data sheets, the counseling, information education interventions concerning the virological, biological, therapeutic and public health risks of non-adherence to ARVs therapy.

When looking at education, the study revealed that majority of the respondents 8(47%) who attained primary education had high knowledge as shown in table 18. This finding does not support the researcher's assumption which states that when the level of education increases adherence to ART also increases. The finding also contradicts Jukes and Desai (2005) who said lower levels of general education and poorer literacy may impact negatively on someone's ability to adhere.

### **5.2.3. PRACTICE OF HEALTH CARE PROVIDERS/ COUNSELLING**

The study revealed that majority of the respondents 90% waited for more than 60 minutes at the ART clinic before being attended to. This was a clear indication that clients spend long periods of time before being attended to and could have been as a result of staff shortage at the clinic. Abrams (2008) pointed out that severe shortage of health care providers meant that patients had to wait for hours.

Table 21 shows that majority of the respondents 44(88%) received counselling sometimes. These results could be attributed to the negative attitude of the health care providers or lack of adequate knowledge on counselling. The results could also be due to inadequate staffing at the clinic which could contribute to non delivery of adequate counseling to the clients. These results defies WHO guidance, which says that adequate time should be set aside for counseling so that appropriate and informed decisions on therapy and its implications are made by the patient (WHO, 2000). Other researchers recognized too the importance of interacting with clients. Marelich et al 2003 stated that there is a growing recognition that a great deal of adherence hinges on the positive interaction between patients and their health care providers. The complexities of ART treatment require that patients are involved in their treatment decisions. This entails a frank and open discussion between the two parties. Patients need to be adequately informed about their treatment schedule and the importance of adhering to the treatment regimen. In turn patients need to communicate any side effects and other lifestyle inconveniences to the health provider (ibid).The specific needs and

peculiar circumstances of PLWAS need to be given due consideration (WHO 2003). There are, nonetheless, cases where patient-provider interaction is less than perfect.

#### **5.2.4 ATTITUDE OF CLIENTS TOWARDS ART**

Among the respondents who had a negative attitude, it could have been as a result of long waiting time. Most of the respondents waited for more than 60 minutes before they were attended to by the health care providers. The other factor could be related to stigma and non disclosure of the HIV, thus the respondents would not feel free to take the drugs when people are seeing them instead they hide when taking the drugs. The result is in line with Rao et al (2007); UNAIDS (2005) who said that HIV/AIDS elicits stigma from society more than any other disease. Stigmatizing attitudes and action include discrimination, avoidance, ridicule, harassment and even forceful removal from homes. The fear of stigmatization may force PLWAS to hide their HIV status. According to Weiser et al (2003), he found that as a result of stigma, 69% kept their HIV status secret from their families, and a further 94% kept it secret from their society.

In regard to the marital status of the respondents, 60% who were married had a positive attitude, towards ART. This could be attributed to acceptance of their status, disclosure and presence of family support (Table 34). Boyer et al, (2011) stated that, individual factors associated with an increased risk of non adherence include having a main partner but not living in a couple compared to patients living in a couple.

The study also revealed that most of the clients had to walk long distance to the clinic (Table3). Among the respondents, 34(68%) walked more than 2 hours. This problem became worse in the rain season when some roads were impassible such that the clients were unable to get to the clinic. This could have made some respondents stay home without drugs. This factor was worsened by financial constraints since clinic visits cost money. To support this statement castro (2005) stated that most studies conducted in poor settings overlook how direct and indirect economic burdens borne by patients affect their ability to access a steady supply of antiretroviral and take them on time. Such burdens may include the cost of transportation to a health center or the cost of tests and supplies.

### **5.2.5. FAMILY SUPPORT**

Majority of the respondents 44(88%) stated that they had support from their family members. The respondents could have obtained the support from the spouse, children, dependants or any other family members who were staying with them. According to Hardon et al 2006, there is some emerging evidence to show that social support is vital in fostering adherence for PLWHAS on treatment. Social support is obtained from different sources such as partners and children. These could help adherence behaviour by taking a leading role in reminding the PLWHAS to take the pills and to attend their reviews.

The study revealed that those who had family support had positive attitude towards ART. The result could be attributed to the encouragement they could have received from their family members. Castro, 2005; Mills *et al.*, 2006 who stated that not living alone, having a partner, social or family support, peer interaction and better physical interactions and relationships are characteristics of patients who achieve optimal adherence.

**5.3. SIGNIFICANCE TO VARIOUS BRANCHES OF NURSING**

**5.3.1. NURSING PRACTICE**

The findings have shown that only 26% of the respondents had high knowledge on adherence to ART while 74% had medium knowledge. The results also show that 88% of the respondents receive counseling occasionally. It is therefore important that measures to strengthen adherence counseling are put in place so that the clients are counseled on every visit as a way of reminding them to adhere to their treatment. If the clients gain high knowledge and understand the importance of taking their medication every day then the default rate will further be reduced.

**5.3.2. NURSING ADMINISTRATION**

The ART clinic needs to be well staffed so that the clients receive the best care they deserve. Despite having lay counselors in the department there is need to have more qualified staff trained in HIV adherence counseling so that they work hand in hand with the other support staff and make sure that the right information is delivered to the clients. There is need for the nurse manager to lobby and ensure that the nurses working in ART clinic have undergone HIV management training.

**5.3.3. NURSING EDUCATION**

The nurse educators need to prepare the nurses who will be able to meet the health needs of the clients. The trainee nurses should be trained in management of HIV clients covering all major topics in HIV, so that they are able to deliver this service to those who are in need.

**5.3.4. NURSING RESEARCH**

Adherence to ART is vital in the management of HIV clients. People do not adhere to treatment due to various reasons. Few studies have been done in Zambia, therefore it is necessary to conduct further research on adherence to make sure all obstacles hindering people to adhere are attended to and prevent the effects of non adherence.

## **5.4. CONCLUSION**

The purpose of the study was to determine factors that influence non adherence to Antiretroviral therapy at Chikankata Mission Hospital ART clinic. The problem was first identified then a proposal concerning the identified problem was written. After obtaining relevant authority data was collected and was then presented accordingly.

The results revealed some issues that would be used by relevant authorities to improve the delivery of health care services. Some of the gaps identified were that clients did not receive the adherence counseling at every visit that they made to the ART clinic as a result some clients did not have adequate knowledge on the importance of adhering to treatment. The study showed that distance worsened this problem as people had to walk long distances to come to the ART clinic. This made the clients on ART miss their scheduled visits even when they run out of drugs. These long distances from the health care facilities indicate that Ministry of health vision of equity of access to health care had not been realized in Mazabuka district.

## **5.5. RECOMMENDATIONS**

### **5.5.1. MINISTRY OF HEALTH**

Ministry of Health should increase staffing levels at Chikankata Mission Hospital as well as providing transport so that the staff could conduct mobile ART services in hard to reach places. Ministry of Health should consider building more health centres in order to meet their obligation of equity of access to health care services by the communities.

### **5.5.2. CHIKANKATA MISSION HOSPITAL ART CLINIC**

The study has revealed that the majority of the respondents have medium level of knowledge on adherence to ART, there is need for the health facility to intensify counseling on regular basis so that the clients are equipped with the necessary information to avoid the implications of non adherence to ART such as drug resistance.

Chikankata Mission Hospital should ensure that adequate staffing in ART clinic in order to achieve quality service delivery.

It is also imperative that the staff allocated to work in the ART clinic has the appropriate knowledge in counselling and ART. Management therefore should ensure that the staff are supported in capacity building.

ART clinic should draw up a schedule which clearly outlines the requirements when assessing knowledge in ART adherence.

There is need to reduce on the waiting time at the clinic so that the clients are not discouraged.

## **VARIOUS BRANCHES OF NURSING**

### **Practice**

The staff should ensure that clients are counseled on each visit made to the clinic to remind them the importance of taking their medication correctly and avoid the consequences of non adherence.

### **Nursing Administration**

The nurse administrator should ensure that more staff trained in HIV management are allocate to the clinic

Refresher courses should be conducted to update the staff on current issues in the management of ART.



**Nursing Education**

The Nurse educators should ensure that the trainee nurses are equipped with knowledge on HIV management so that as they work in various places of the country, they should be able to deliver quality health services to those who are in need.

**Nursing Research**

Optimum levels of adherence to ART treatment are required for successful management of HIV positive clients. Few studies that have been done indicate that clients do not adequately adhere to treatment. It is therefore necessary that more studies are conduct in order to come up with best ways of attending to the various obstacles that hinder the clients.

**5.6. DISSEMINATION OF FINDINGS**

The researcher will make copies of the research report and submit them to Ministry of Health library, University of Zambia Library, Department of Nursing Sciences, Chikankata Hospital Management and one copy will be for the researcher. Therefore five copies of the research report will be made. The researcher will take advantage of Hospital management meetings and the clinical symposium to disseminate the findings of the research.

**5.7. LIMITATION OF THE STUDY**

- The sample size was small therefore the study findings cannot be generalized to HIV positive client in Zambia.
- The study was not done on a large scale due to limited time and funding.
- Long distances to cover in order to reach out the clients.
- The study was done at Chikankata, therefore the findings cannot be generalized country wide.

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**APPENDIX I**

**QUESTIONNAIRE**

**THE UNIVERSITY OF ZAMBIA**

**SCHOOL OF MEDICINE**

**DEPARTMENT OF NURSING SCIENNCES**

**QUANTITATIVE DATA COLLECTION TOOL - STRUCTURED QUESTIONNAIRE**

**Structured interview guide for HIV positive clients who are on ART treatment.**

Date of interview \_\_\_\_\_

Study site \_\_\_\_\_

Code of the interview \_\_\_\_\_

**INSRUCTIONS TO THE INTERVIEWER**

1. Introduce yourself to the participants
2. Explain the purpose of the interview and that all responses will be treated with confidence
3. Make sure no name or address of respondents appear on the questionnaire
4. Ensure the participants are free to answer questions throughout the interview
5. Tick the answer in the space provided for question with alternatives
6. For the questions without alternative responses, write down the responses in the space provided
7. Ask the questions as phrased without changing the meaning
8. Thank the participants at the end of each interview

## SECTION A

### DEMOGRAPHIC INFORMATION

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1. Sex/ Gender of participant?

a. Male

[ ]

b. Female

[ ]

2. How old were you at your last birthday?

a. 18-25 years

[ ]

b. 25-33 years

[ ]

c. 34-41 years

[ ]

d. 42-49 years

[ ]

e. 50 and above

[ ]

3. Which religion/denomination do you belong to?

a. Salvation Army

[ ]

b. Seventh Day Adventist

[ ]

c. Roman catholic

[ ]

d. United Church of Zambia

[ ]

e. Jehovah's Witnesses

[ ]

f. New Apostolic Faith

[ ]

g. Hindu

[ ]

h. Moslem

[ ]

4. What is your level of education?

i. None

[ ]

ii. Primary education

[ ]

iii. Secondary education

[ ]

iv. University/college education

[ ]

5. What is your marital status?

- a. Single [ ]
- b. Married [ ]
- c. Separated [ ]
- d. Divorced [ ]
- e. Widowed/ widower [ ]
- f. Co-habiting [ ]

6. How many children do you have? \_\_\_\_\_

What is the age of the last born? \_\_\_\_\_

7. What has been your main occupation?

- a. Employed full time [ ]
- b. Employed part time [ ]
- c. Business/self employed. [ ]
- d. Unemployed

## SECTION B

### ECONOMIC INFORMATION

8. What are the main sources of food for your household?

- a. Purchase (market/grocery) [ ]
- b. Welfare/NGO support [ ]
- c. Household farm/garden [ ]
- d. Relatives/friends [ ]
- e. Others (specify) \_\_\_\_\_

9. About how much money in Zambian kwacha do you usually spend on buying food per month in your household?

\_\_\_\_\_

10. How many meals do you afford to take per day?

- a. One [ ]
- b. Two [ ]
- c. Three [ ]
- d. More than three [ ]

11. How long does it take you to walk to the clinic?

- a. Less than 30 minutes walk [ ]
- b. 30 minutes to 60 minutes walk [ ]
- c. 60 minutes to 90 minutes walk [ ]
- d. More than 90 minutes [ ]

## SECTION C

### KNOWLEDGE ON ADHERENCE TO ARV DRUGS

12. What are ARV drugs used for?

- a. Curing HIV [ ]
- b. Reducing pain [ ]
- c. Reducing progression of HIV [ ]
- d. I don't know [ ]

13. Are you able to follow ARV therapy regimen?

- a. No [ ]
- b. Yes [ ]

14. Were you told the importance of taking ARV therapy consistently?

- a. No [ ]
- b. Yes [ ]

15. Were you told about the side effects of these drug(s) given?

- a. No [ ]
- b. Yes [ ]



16. Which ART drugs are you currently taking?

- a. Stavudine (d4T) [ ]
- b. Lamivudine (3Tc) [ ]
- c. Efavirenze (EFZ) [ ]
- d. Tenofovir [ ]
- e. Zidovudine (ZDC or AZT) [ ]
- f. Emitricitabine (FTC) [ ]
- g. Didanosine (ddl) [ ]
- h. Nevirapine (NVP) [ ]
- i. I don't know [ ]

17. How long are you supposed to take the ARV drugs?

- a. For life [ ]
- b. For some years [ ]
- c. Don't know [ ]

18. What other drugs (besides anti-retroviral drugs) are you currently on (tick as appropriate)

- a. Pain killers [ ]
- b. Nonoe [ ]
- c. Antibiotics(other than for TB) [ ]

19. Many people find it hard to remember taking every single dose of ARVs, what drug have you missed?



20. For how long have you missed taking the drugs?

- a. Less than one month [ ]
- b. More than one moth [ ]

1. What things can make it hard for you to remember

taking your tablets?

- a. Developed side effects [ ]
- b. Forgot to take ART [ ]
- c. Felt better [ ]
- d. Too ill [ ]
- e. Fear of stigma [ ]
- f. Non disclosure [ ]
- g. Stock was finished [ ]
- h. Drunk alcohol [ ]
- i. Too many pills/ pill burden [ ]
- j. Being away from home [ ]

2. What benefits have you gained from using ARV drugs?

- a. Improves quality of life [ ]
- b. Suppression of viral load [ ]
- c. Cures HIV [ ]
- d. Reduces pain [ ]

3. Where do you obtain the ARV drugs?

- a. Chemist/ pharmacy [ ]
- b. Government Health institutions [ ]
- c. Mission hospitals/clinics [ ]
- d. Don't know [ ]
- e. Others specify \_\_\_\_\_ [ ]

24. How often are the ARV drugs available at the clinic?

- a. Sometimes [ ]
- b. Always [ ]
- c. Never available [ ]

## SECTION D

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### PRACTICE OF HEALTH CARE PROVIDERS AND PATIENTS ON ART/ COUSSELLING

25. How long do you wait at the clinic before you are attended to?

- a. Less than 30 minutes ☐
- b. 30 – 60 minutes ☐
- c. More than 60 minutes ☐

26. Have you received any counseling during your treatment?

- a. No ☐
- b. Yes ☐

27. How often do you receive adherence counseling?

- a. Always ☐
- b. Sometimes ☐
- c. Never ☐

28. Do you think counseling is useful for HIV patients on treatment?

- a. No ☐
- b. Yes ☐

29. Was privacy maintained during consultation?

- a. No ☐
- b. Yes ☐

30. Are you required to take drugs after or before meals?

- a. Before meals ☐
- b. After meals ☐
- c. At own convenient time ☐

31. Has this requirement made it difficult to take your drugs

At the right time

- a. Yes ☐
- b. No ☐

32. If yes to question 32, explain how. \_\_\_\_\_

## SECTION E

### SOCIAL CULTURE FACTORS

#### ATTITUDE TOWARDS ART/FAMILY SUPPORT

FOR OFFICIAL USE ON

33. What is your opinion regarding ART therapy

- a. Approve [ ]
- b. Disagree [ ]
- c. Undecided [ ]

34. If disapproved what are the reasons?

35. Do you avoid friends or relatives because of your illness?

- No [ ]
- Yes [ ]

36. In the last one month did you have any family or community member who supported (reminded or encouraged) you to take your ARV medications?

- a. No [ ]
- b. Yes [ ]

37. If yes, who was the person that supported you?

- a. Spouse [ ]
- b. Immediate member of family [ ]
- c. Nurse [ ]
- d. Doctor [ ]
- e. Social Worker/Community Health Worker [ ]
- f. Friend [ ]
- g. No one [ ]

38. What social-cultural factors do you think hinder you from following treatment as required?

- a. Preference to traditional medicine
- b. Religion
- c. Lack of family support
- d. Nothing

[ ]  
[ ]  
[ ]

39. Are there any problems in the family you think hinder you from taking your treatment properly?

- a. Yes

[ ]  
[ ]

40. What would you like to be done to improve service delivery in ART[ clinics?

---



---



**Thank you for taking time to participate in this interview and God bless you**

## APPENDIX II CONSENTFORM

Dear participant,

My name is Mirriam Hangoma. I am a student at the University of Zambia School Of Medicine, Department of Nursing Sciences. I am pursuing a Bachelor of Science degree in Nursing.

In partial fulfillment of the degree programme, I am required to undertake a research project. My study topic is “**A study to determine factors that influence non adherence to Anti Retroviral Therapy among HIV positive clients at Chikankata Mission Hospital**”. You have been conveniently selected to participate in this study and I wish to inform you that participation in this study is voluntary and you are free to withdraw at any stage of the study if you wish to do so. You will be asked some questions concerning ART. The information you will give me will be kept confidential and no name will be written on the questionnaire.

You will not receive direct benefits from the study or monetary gain but the information that you provide will help Chikankata Mission Hospital and other relevant authorities in planning and delivery of health services.

I(name)-----

of-----

on this day of-----/-----/2011 declare that I understand the purpose of this study and am willing to participate.

Signature/Thumb print-----

Signature of interviewer-----

### APPENDIX III

#### WORK PLAN

TASK TO BE PERFORMED	TIME FRAME		RESPNSIBLE PERSON
	DATES	DURATION	
Review of research proposal	20.06.11 to 30.09.11	113 days	Researcher
Literature review	Continuous	Continuous	Researcher
Clearance from the school ( supervisor)	01.10.11 to 17.10.11	17 days	Researcher
Amendments to data collection	03.10.11 to 07.10.11	5 days	Researcher
Printing research proposal	10.10.11	1 day	Researcher
Pilot study	12.10.11 to 13.10.11	2 days	Researcher
Finalizing research proposal	20.06.11 to 15.10.11	118 days	Researcher
Training of research assistants	25.10.11	1 day	Researcher
Data collection	27.10.11 to 14.11.11	12 days	Researcher and research assistant
Data analysis	15.11.11 to 14.12.11	30 days	Researcher
Report writing	15.11.11 to 30.12.11	16 days	Researcher
Submission of draft report to DNS	31.01.12	10 days	Researcher
Finalizing the report	14.02.11 to 24.02.12	38 days	Researcher
Submission of final research report	25.03.12	1 days	Researcher
Dissemination of research findings	4-8 .04.12	5 days	Researcher
Monitoring research project	Continuous	Continuous	Researcher

**APPENDIX IV**

**BUDGET**

DESCRIPTION OF ITEM	UNIT COST	QUANTITY	TOTAL COST
<b>STATIONARY</b>			
Bond paper	35,000.00	4	140,000.00
Note book	10,000	1	10,000.00
Pencils	1,000.00	2	2,000.00
Pens	1,000.00	5	5,000.00
Flip chart	45,000.00	1	45,000.00
Scientific calculator	75,000.00	1	75.000.00
Marker	3,500.00	4	14,000.00
Files	11,000.00	2	22,000.00
Tippex	9,000.00	1	9,000.00
Stapler	15,000.00	1	15,000,00
Staples	5,000.000	1	5,000.00
Rubber	2,000.00	1	2,000.00
<b>Sub Total</b>			<b>344,000.00</b>
<b>SECRETARIAL SERVICES</b>			
Typing questionnaire	3000.000	10x 3,000.00	30,000.00
Photocopying questionnaire	250	250x10x60	150,000.00
Typing research report	3000,00	3000x40	120,000.00
Photocopying research report	250	250x90	22,500.00
Binding research report	25,000.00	1x25,000.00	25,000.00
Photo copyining research proposal	250	250x90	12,500.00
Binding research proposal	25,000.00	1x25,000.00	25,000.00
Typing research proposal	3000.00	3000.00x90	270,000.00
<b>Sub total</b>			<b>655,000.00</b>
<b>Personnel allowances</b>			
Lunch allowances for researcher	50,000.00	12x 50,000,00	600,000.00
Lunch allowance for research assistant	50,000.00	12x50,000.00	600,000.00



<b>Subtotal</b>			<b>1,200,000.00</b>
<b>MISCELLANEOUS</b>			
Bag for questionnaire	80,000.00	1x80,000.00	80,000.00
CD	5,000.00	2x5,000.00	10,000.00
<b>Subtotal</b>			<b>90,000.00</b>
Fuel	9,000.00	9,000.00x8 litersx12 days	864,000.00
<b>Subtotal</b>			<b>864,000.00</b>
Contingency 10%			315,000.00
<b>Grand total</b>			<b>3,468,00.00</b>

## **BUDGET JUSTIFICATION**

In order for the research to be carried out smoothly, there are certain items which should be in place. A budget for items such as notepad, scientific calculator, CD, a bag, stapler, files etc is required for the purchase of such items that are essential for the research.

Stationary was used in this research proposal for writing the project proposal, preparation of questionnaires, data collection, processing and analysis. Stationary was also needed for writing the final report.

## **SECRETARIAL SERVICES**

Secretarial services which were required for this study included typing, photocopying, printing and binding the research proposal.

## **MONEY FOR FUEL**

Funds were required to buy fuel to enable the researcher move from one area to the other in order to collect the needed data.

## **ALLOWANCES**

The researcher and the research assistant needed lunch allowance during data collection as they were required to work beyond normal working hours.

## **CONTINGENCY ALLOWANCE**

The contingency allowance of 10% of the total budget was required to take care of the unplanned events that arose during the research

# APPENDIX V

## GANTT CHART

TASK TO BE PERFORMED	2011							2012			
	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR
Review of research proposal											
Literature review											
Pilot study											
Finalizing research proposal											
Clearance from the school ( supervisor)											
Printing research proposal											
Training of research assistant											
Amendments to data collection											
Data collection											
Data analysis											
Report writing											
Submission of draft report to DNS											
Finalizing the report											
Submission of final research report											
Dissemination of research findings											
Monitoring research project											

University of Zambia  
School of Medicine  
Department of Nursing Sciences  
P O BOX 50110  
Lusaka

20<sup>th</sup> October, 2011

The Senior Medical Officer  
Chikankata Mission Hospital  
P/B S 2  
Mazabuka

u.f.s : The Head  
Department of Nursing Sciences  
School of Medicine  
P.O Box 50110  
Lusaka

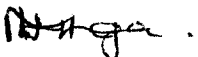
Dear Sir,

**RE: PERMISSION TO CONDUCT A RESEARCH STUDY**

I am a fourth year student at the University of Zambia, School of Medicine, Department of Nursing Sciences pursuing a Bachelor of Science in Nursing. In partial fulfillment of the degree programme, I am expected to carry out a research study. My study topic is "A study to determine factors influencing non adherence to Antiretroviral therapy among HIV clients". Therefore I am requesting for permission to conduct a research in your institution.

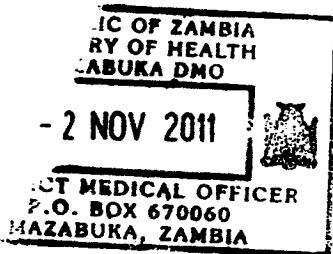
Your positive response will be greatly appreciated. Thanking you in advance

Sincerely yours.



Mirriam Hangoma

**4<sup>TH</sup> YEAR B.SC. NURSING STUDENT**



University Of Zambia

School Of Medicine

Department Of Nursing Sciences

P O Box 50110

Lusaka

20<sup>th</sup> October, 2011

The District Medical Officer

Mazabuka DHMT Office

P.O.Box

Mazabuka

u.f.s: The Head

Department of Nursing Sciences

School of Medicine

P.O Box 50110

Lusaka

Dear Sir,

**RE: PERMISSION TO CONDUCT A PILOT STUDY**

I am a fourth year student at the University of Zambia, School of Medicine, Department of Nursing Sciences pursuing a Bachelor of Science in Nursing. In partial fulfillment of the degree programme, I am expected to carry out a research study. My study topic is "A study to determine factors influencing non adherence to Antiretroviral therapy among HIV clients". Therefore I am requesting for permission to conduct a pilot study in your district at Mazabuka District Hospital.

Your positive response will be greatly appreciated.

Thanking you in advance

Sincerely yours.

*Mirriam*

Mirriam Hangoma

**4<sup>TH</sup> YEAR B.SC. NURSING STUDENT**

*No objection*

*MDH  
copy - HA  
- SNO*

*- Incharge ART*

*NOTE that the actual  
study will require  
ethical approval*



**The Salvation Army**  
**Chikankata Mission Hospital**  
**PB S-2, Mazabuka, Zambia**

Office of the Chief Medical Officer  
Email: [zairemthiama@gmail.com](mailto:zairemthiama@gmail.com)  
Ph: (+26) 0978124056

27<sup>th</sup> October 2011

**Ms Mirriam Hangoma**  
University of Zambia  
School of Medicine – Department of Nursing Sciences  
P.O. Box 50110, Lusaka, Zambia

**RE: Your application for permission to conduct research at Chikankata Mission Hospital on the topic: "A study to determine factors influencing non-adherence to Antiretroviral therapy among HIV clients."**

Dear Madam,

The above subject refers.

With regards to your application dated 20<sup>th</sup> October 2011, I would like to inform you that permission has been granted to you to carry out research study at Chikankata Mission Hospital on the topic: *A study to determine factors influencing non-adherence to Antiretroviral therapy among HIV clients*, on the conditions that:

1. Strict confidentiality has been maintained with regards to participants'/subjects' information;
2. You remain within the boundaries of national legislation and institutional guidelines within this field of study; and that
3. You fulfil the conditions laid out in the approval letter you received from the University of Zambia, School of Medicine, Department of Nursing Sciences.

On behalf of the Hospital Management Board, I wish you success with your research activities.

Yours faithfully,

**Dr. Zairemtiama Pachauu**  
**MBBS, PDHIV/AidsMan**  
**Chief Medical Officer**



Cc: The Head, Department of Nursing Sciences, School of Medicine  
Cc: File

