THE UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF NURSING SCIENCES

ADHERENCE TO ANTIRETROVIRAL MEDICATIONS AND QUALITY OF LIFE AMONG PEOPLE LIVING WITH HIV/AIDS IN CHIKANKATA, LIVINGSTONE, LUSAKA AND MWINILUNGA DISTRICTS IN ZAMBIA.

BY

Kalembela Valerie M (ZRN/RM)

Libingi Muleya Linda (ZRN/RM)

Yung'ana Mbambo Musole (ZRN)

Zulu Debonair (ZRN, ON)

RESEARCH SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF BACHELOR OF SCIENCE DEGREE IN NURSING AT THE UNIVERSITY OF ZAMBIA

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UNZA, DNS

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- The research informants without whom this document would have not been possible

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LIST OF ACRONYMS

3TC	-	Lamivudine
ABC	-	Abacavir
ABC	-	Affective Behavioural and Cognitive
ACF	-	Aids Care Foundation
AIDS	-	Acquired Immune Deficiency Syndrome
ART	-	Antiretroviral Therapy
ASW	-	Adherence Support Workers
AZT	-	Zidovudine
CAFOD	-	Catholic Agent for Overseas Development
CBO	-	Church Based Organisation
CD4	-	Cluster Differential
CDC	-	Center for Disease Control
CHAZ	-	Churches Health Association of Zambia
CHD&R	-	Community Health, Development & Research
CHS	-	Chikankata Health Services
CHW	-	Community Health Workers
CIRDZ	-	Center for Infectious Disease Research in Zambia

CMV	-	Cytomegalovirus
CSO	-	Central Statistics Office
d4T	-	Stavudine
ddI	-	Didanosine
DFID	-	Department for international Development
DOTS	-	Daily Observed Treatment Shortcourse
EFV	-	Efavirenz
FHI	-	Family Health International
FTC	-	Emtricitabine
GNC	-	General Nursing Council of Zambia
HAART	-	Highly Active Antiretroviral Therapy
HARD	-	HIV and AIDS Response Department
HBC	-	Home Based Care
HCP	-	Health Care Provider
HIV	-	Human Immunodeficiency
IDV	-	Indinavir
IEC	-	Information, Education and Communication
LPV/r	-	Lopinavir/r
MAC	-	Mycobacterium avium complex
MDT	-	Multi – Disciplinary Teams

MEMS	-	Micro-Electronic Monitoring System
MO	-	Medical officer
MOH	-	Ministry of Health
NAC	-	National Aids Council
NAM	-	Non Aligned Movement
NFV	-	Nelfinavir
NNRTIs	-	Nucleoside Reverse Transcriptase Inhibitors
NRTIs	-	Nucleoside Reverse Transcriptase Inhibitors
NVP	-	Nevirapine
OIs	-	Opportunistic infections
PCP	-	Pneumocystis pneumonia
PI	-	Protease Inhibitors
PLWHA	-	People Living with HIV/AIDS
PMTCT	-	Prevention of Mother to Child Transmission of HIV/AIDS
QoL	-	Quality of Life
RTV	-	Ritonavir
SQV	-	Saquinavir
STIs	-	Sexually Transmitted Infections
TB	-	Tuberculosis
TDF	-	Tenofovir

THET	-	Tropical Health Education Trust
Toxo	-	Toxoplasmosis
UNAIDS	-	United Nations AIDS
UNGASS	-	United Nations General Special Session
UNICEF	-	United Nations Children's Fund
UTH	-	University Teaching Hospital
VCT	-	Voluntary Counseling and Testing
WHO	-	World Health Organisation
WHOQOL- HIV Likert-		World Health Organisation Quality of Life HIV
ZPCT	-	Zambia Prevention and Care Team
ZPCTP	-	Zambia Prevention Care and Treatment Partnership

DECLARATION

I, Kalembela Valerie M hereby declare that with exception of the assistance of sources acknowledged, this thesis is our original work and has not been presented for a degree or other awards in any other University.

Signed: _____

CANDIDATE

Date: 5th June, 2013.

DECLARATION

I, Libingi Muleya Linda, hereby declare that with exception of the assistance of sources acknowledged, this thesis is our original work and has not been presented for a degree or other awards in any other University.

Signed: M. L. Libingi

CANDIDATE

Date: 5th June, 2013

DECLARATION

I, Yung'ana Mbambo Musole hereby declare that with exception of the assistance of sources acknowledged, this thesis is our original work and has not been presented for a degree or other awards in any other University.

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CANDIDATE

Date: 5th June, 2013

DECLARATION

I, Yung'ana Mbambo Musole hereby declare that with exception of the assistance of sources acknowledged, this thesis is our original work and has not been presented for a degree or other awards in any other University.

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CANDIDATE

Date: 5th June, 2013

DECLARATION

I, Zulu Debonair hereby declare that with exception of the assistance of sources acknowledged, this thesis is our original work and has not been presented for a degree or other awards in any other University.

Signed: _____

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Date: 5th June, 2013

SUPERVISING LECTURER

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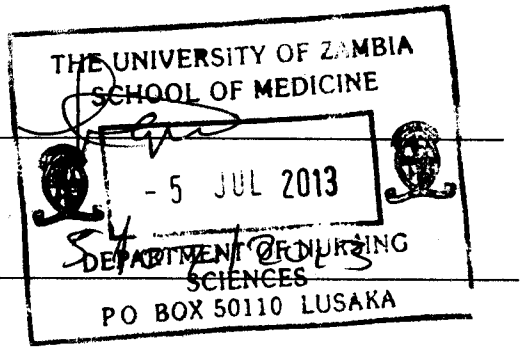
Date: _____



STATEMENT

We, Kalembela Valerie M, Libingi Muleya Linda, Yung'ana Mbambo Musole, and Zulu Debonair hereby certify that this study is entirely the result of our own independent investigations. The various sources, to which we are indebted, are clearly acknowledged in the text and in the references.

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DEDICATIONS

I, Musole Mbambo Yungana, wish to dedicate this study to my lovely husband, Mr Thom D. Yungana, My parents; Mr and Mrs Chinoya Mbambo, my children; Danny, Joyce, Thom Jr. and Prince for their unweathering love, care, support and encouragement.

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ABSTRACT

Quality of life (QoL) is a significant element in the assessment of the well-being of people living with HIV and AIDS (PLWHA), in particular with the major rise in longevity of PLWHA. Moreover, no studies have been done in Zambia on ART adherence and quality of life in PLWHA in with the World Health Organisation Quality of Life Likert Scale (WHOQoL-Likert) instrument.

The purpose of this study was to determine the relationship between adherence to antiretroviral medications and quality of life among people living with HIV/AIDS in urban and rural Zambia.

The study was cross-sectional and descriptive. It was conducted in October 2012 from four sites, namely, Lusaka, Livingstone, Chikankata and Mwinilunga districts ART clinics respectively. It involved two hundred (200) simple randomly selected HIV-positive clients, fifty (50) from each site, who were on HAART for one to five years and consented to participate in the study. A semi-structured questionnaire was used to collect information on demographic and clinical characteristic data, quality of life and ART adherence. QoL was assessed with WHO QoL-Likert scale.

The findings in this study did not show a direct relationship between QoL and ART adherence in that some respondents with poor QoL had good adherence at the same time some with good QoL had poor adherence. The findings in the data ended up not testing the hypothesis.

In conclusion, the study has failed to find enough statistical evidence to support the research hypothesis which states that as adherence to ART medications among people living with HIV and AIDS increases QoL of life will also improve. This means that statistically there is no relationship between adherence to ART medications and QoL in people living with HIV and AIDS.

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CHAPTER ONE

1.0 Introduction

1.1 Background Information

The Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV and AIDS) pandemic is a disastrous realism being experienced by individuals, families, and communities worldwide. There is literally no aspect of life that has not directly or indirectly been negatively influenced by the HIV/ AIDS epidemic (United Nations AIDS/World Health Organisation (UNAIDS /WHO, 2007).The first cases of Acquired Immunodeficiency Syndrome (AIDS) were reported in the early 1980s. Since then, the disease has globally grown to pandemic proportions posing serious health and economic challenges worldwide and more especially in developing countries (UNAIDS/WHO, 2006).

An estimated 34.0 – 35.2 million people globally were living with HIV/AIDS by the end of 2010 (World Health Organisation and United Nations Children's Fund (WHO/UNICEF, 2010). There were 2.7 million new infections in 2010 globally of which 2.3 million were adults and 390,000 were children below the age of 15 years. There were 1.8 million deaths of which 1.5 million were adults and 250,000 were children.

HIV and AIDS is now the leading cause of death in sub-Saharan Africa and it is estimated that 22.9 million Africans are living with HIV/AIDS with 1.7 million new infections occurring in 2010 (WHO/UNAIDS, 2010).

Sub-Saharan Africa remains the most affected region in the global AIDS epidemic (WHO, 2010). More than two thirds (66%) of all people who are HIV positive lived in Sub-Saharan Africa where more than three quarters (67%) of all AIDS deaths in 2010 occurred (UNAIDS/WHO, 2010).

Zambia, with an estimated population of 13.2 million, is one of the countries hardest hit with the HIV and AIDS epidemics in the world. Overall adult prevalence is 14.3%, and 1.6% of the adult population becomes newly infected each year, approximately 82,681 people in 2009 (MOH, 2010). Highly Active Antiretroviral Therapy (HAART) consists of a combination of three drugs from at least two different classes namely Nucleoside Reverse Transcriptase Inhibitors (NRTIs) such as, Zidovudine (AZT), Stavudine (d4T), Lamivudine (3TC), Emtricitabine (FTC), Didanosine (ddI), Abacavir (ABC), Tenofovir (TDF); Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) such as, Nevirapine (NVP), Efavirenz (EFV) and Protease Inhibitors (PI) such as Lopinavir/r (LPV/r), Ritonavir (RTV), Indinavir (IDV), Saquinavir (SQV), Nelfinavir (NFV). When commencing a client on HAART, two (NRTIs) and one (NNRTIs) or two NRTIs and PI are prescribed. Zambia has described the first line medications as shown in Table 1.1 below.

Table 1.1

Recommended Antiretroviral Regimens

irst Line	**First Line**	**Second Line**	**Second Line**	**Second Line**
DF and FTC or TC	**EFV or NVP**	**AZT**	**3TC OR TDF and FTC or 3TC D4T and 3TC**	**LPV and r**

Source: MOH (2010) Adult and Adolescent Antiretroviral Therapy Protocols

The goal of HAART is to reduce the viral load to undetectable levels. All clients must have a confirmed HIV serology test and should access counselling services and meet the Zambia National Guideline eligibility criteria before being commenced on ART.

HAART initiation is not an emergency and it has to be initiated after proper treatment preparation. ART needs to be taken for the rest of the client's life and adherence to medication is vital to prevent emergence of resistant strains of HIV. HAART compliments the treatment and prophylaxis of opportunistic infections and post exposure prophylaxis should be initiated as soon as possible, ideally within two hours of exposure.

HAART is prescribed by health care providers who are legally recognised to prescribe in Zambia, trained in HIV and AIDS management, and have access to sustainable drug supply and to facilities to monitor therapy and participates in the continues medical education in the use of ARVs and monitoring of ART. Table 1.2 below shows staffs recommended to prescribe HAART.

Table 1.2 Staffs Recommended to Prescribe HAART

Clinician	**Supplementary Training**	**Prescribing of ARVs**
Medical Doctors	ART trained	First line and second line regimens
Medical Licentiates	ART trained	First line and second line regimens
Clinical Officers	ART trained	First line
Nurses	HIV nurse practitioner training	First line (uncomplicated)
HIV specialist	Medical Officer with Masters of Science HIV medicine or equivalent for example Registrar or Consultant.	First line, second line and third line regimens

Source: MOH (2010) Adult and Adolescent Antiretroviral Therapy Protocols

It is important to note that a proper assessment needs to be conducted before commencement of ART. The WHO clinical staging and case definition is used. The clinical staging and case definition of HIV for resource-constrained settings were developed by WHO in 1990 and revised in 2006 and adopted by Zambia in 2004.

WHO Staging is based on clinical findings that guide the diagnosis, evaluation, and management of HIV and AIDS, and does not require a CD4 cell count.

The clinical stages are defined by specific clinical conditions or symptoms. According to World Health Organisation (WHO) staging system, adolescents and adults are defined as individuals aged 15 years above. The WHO staging systems for HIV and AIDS in adults is important because it provides a guide to prognosis and interventions needed at the different stages and guidance in monitoring the response to therapy. The adapted WHO staging for HIV disease in adults and adolescents is described in four stages in a table below:

Table 1.3

WHO Clinical Staging and Case Definition

Clinical stage	**Description**
One	This stage comprises of asymptomatic and persistent generalized lymphadenopathy
Two	A stage of moderate unexplained weight loss (under 10% of presumed or measured body weight), recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media, pharyngitis) herpes zoster, angular cheilitis, recurrent oral ulceration, papular pruritic eruptions, seborrhoeic dermatitis, fungal nail infections
Three	Includes; unexplained severe weight loss (over 10% of presumed or measured body weight),unexplained chronic diarrhoea for longer than one month, unexplained persistent fever (intermittent or constant for longer than one month) persistent oral candidiasis, oral hairy leukoplakia, pulmonary tuberculosis (current or TB diagnosed 12 months before HIV diagnosis), severe bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis),acute necrotizing ulcerative stomatitis, gingivitis or periodontitis, unexplained anaemia (below 8 g/dl), neutropenia (below 0.5 x 109/l) and/or chronic thrombocytopenia (below 50 x 109 /l).

TABLE 1.2 CONTINUED ON THE NEXT PAGE

TABLE 1.2 CONTINUED

Clinical stage	Description
Four	Stage four includes wasting syndrome, Pneumocystis carinii pneumonia, recurrent severe bacterial pneumonia, chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration or visceral at any site),esophageal candidiasis (or candidiasis of trachea, bronchi or lungs),extrapulmonary tuberculosis,kaposi sarcoma, cytomegalovirus infection (retinitis or infection of other organs),central nervous system toxoplasmosis, HIV encephalopathy, extrapulmonary cryptococcosis including meningitis, disseminated non-tuberculous mycobacteria infection, progressive multifocal leukoencephalopathy, chronic cryptosporidiosis, chronic isosporiasis, disseminated mycosis (extrapulmonary histoplasmosis, coccidiomycosis),recurrent septicaemia (including non-typhoid salmonella),lymphoma (cerebral or B cell non-Hodgkin),invasive cervical carcinoma, atypical disseminated leishmaniasis, and symptomatic HIV-associated nephropathy or HIV-associated cardiomyopathy. It also important to take note of the following; unexplained refers where the conditions is not explained by other conditions, assessment of body weight among pregnant women needs to consider the expected weight gain of pregnancy, unexplained weight loss of more than 10% baseline body weight associated with either chronic diarrhoea or chronic weakness and documented fever of more than 1 month. WHO staging system is used in Zambia in conjunction with CD4 criteria to determine eligibility for ART.

The ART programme was introduced in Zambia by the private sector in 1995 and has been the main provider until 2002. The Ministry of Health started providing ART in 2002, the ART programme rolled out to 90% of the 80 districts in the country with 107 health facilities providing ART services in 2002. At the end of 2009, Zambia had 447 health facilities that were offering ART (prescribe and/or provide clinical follow-up) representing an increment from 115 new facilities since 2008 (Zambia UNGASS Report, 2012).

Zambia, had 1,563 health facilities, this implied that Zambia had 29 per cent of the total health facilities offering ART as at the end of 2009 (Zambia Country Progress Report – UNGASS 2010 Reporting). About 1,327,995 people are estimated to be living with HIV (Zambia UNGASS Report, 2012); 535,828 adults (≥ 15 years) and 107,592 children (≤ 14 years) require antiretroviral therapy (ART). Out of these 90 % of adults are on ART and only 28 % for children (Zambia UNGASS Report, 2012).

Zambia declared HIV and AIDS as a national tragedy in 2004 (National Aids Council (NAC) 2004) and offered subsidized Anti Retroviral Therapy (ART) to those who could afford cost sharing. By June 2004, Zambia received an exceptional amount of money from the Global Fund in order to increase free access to antiretroviral therapy. In February 2005, in acknowledgment of HIV/AIDS as a human rights and moral issue, Zambia fully dedicated itself to provision of free ART to all HIV infected individuals requiring treatment.

Zambia adopted the WHO/UNAIDS ART programme in the management of HIV/AIDS. By the end of 2005, Zambia targeted 100,000 people living with HIV/AIDS to be commenced on ART. In order to achieve the target MOH needed to establish ART centers in the 73 districts (NAC, 2004). Free anti retroviral therapy (ART) was introduced in 2002 to strengthen the health system and improve the quality of HIV services. By the end of 2009, 68% of 330,000 who needed ARVs were receiving the treatment and a third of all health facilities in the country were able to offer treatment (NAC, 2009).

The introduction of ART came with the following benefits to people living with HIV and AIDS (PLWHA): inhibition of viral replication leading to a reduction in the viral load and improvement in the CD4 count (Moultrie, Yotebieng, Kuhn and Meyers 2009), reduction in HIV related mobility and mortality, reduction in HIV transmission rate and consequently a client's quality of life improves and become more productive (MOH, 2010).

Adherence to ART is of paramount importance if these benefits are to be achieved. Adherence is defined as the extent to which the client takes medication in the way intended by the health care provider (Sackettt 2001). The term adherence is meant to be non judgemental, statement of facts rather than expressions of blame towards a client or provider.

Typical adherence rates for medication prescribed over a long period of time is approximately 50% to 70% (ibid).On average more than 95% is needed to achieve viral suppression. Adherence to ART also results in decreased hospital readmissions and reduced cost. Mweemba. Mukwato, Makoleka and Makukula (2010), states that persons with HIV and AIDS who adhere to medication for at least one year are less likely to experience AIDS related mortality. Hence adherence to ART is imperative for improved quality of life in people living with HIV and AIDS.

Quality of life is a frequently used phrase which lacks a precise and consistent definition. However, WHO 2010 defines Quality of Life (QoL) as individual's perception of their position in life in the context of culture and value system in which they live. This is in relation to their goals, expectations, standards and concerns. The person enjoys the important possibilities of life as a result of opportunities and limitations which they have and are reflected in the interaction of personal and environmental factors. This interplay is among social, health, economic, and environmental condition which affects human and social development (Ontario, 2007 and Frank, 1963).

There are four main domains which measures the overall quality of life and the general health of a client, namely; physical, psychological, social relations and environmental domains (WHO, 2007). Each of these domains contributes to ones overall assessment of the QoL and depends on experiencing connectedness in the four major interrelated domains (Ideal Fitness Journal, 2007).

Physical domain measures an individual's aspects of health such as physical appearance which signifies a person's wellbeing or ill health, the body's energy level, fatigue, pain and discomfort. The other components of this domain include assessment of independence and the ability to take on the normal activities of daily living such as breathing, eating and drinking, mobility, exercises, communication, personal cleansing and dressing as well as rest and sleep (Roper, Logan & Tierney, 2004).

Psychological domain looks at the person's psychological health, self esteem, adjustments to life experiences, cognitions, and evaluations concerning the self, self-control and feelings. These feelings can be positive or negative and when measured signify the person's capability having hope or not having it. The other components are learning new things, memory function in terms of retrieving the recent and past life events and concentration capabilities.

The social relations domain looks at the personal relationships and social interaction with other people. This is depicted in a person's sense of identity in relation to family, other people around, cultural practices, gender, social class, social/political systems, sexuality and geographic location. These connections between individuals and the social, political and cultural structures have an impact in that they shape people to the acceptable standard of life in society. Spirituality is another factor in the social relations domain which encompasses an individual's spirituality, religion and personal belief about forgiveness, blame, concerns about the future, and death and dying. Spiritual belief can also be reflected in personal values, personal standards of conduct instill a sense of hope, guidance and comfort to the person (WHO, 2008).

Environmental domain concentrates on financial resources, the general physical resources, safety and security and the ability to access quality health and social care. It also looks at the home environment; opportunities for acquiring new information and skills, and participating in recreation and leisure activities (WHO, 2008).For QoL encompassing the four domains and its element to be achieved, people living with HIV and AIDS need to adhere to ART.

Adherence to ART is the second strongest predictor of progression to AIDS and death, after CD4 count (NAC, 2006). Adherence to therapy is essential if successful outcomes of ART are to be depicted in PLWHA. ART adherence is associated with an improved quality of life in people infected with HIV resulting in decreased morbidity, mortality, hospital readmissions and reduced cost (WHO, 2003, Amico, et al, 2004). Non-adherence risks the development of drug resistance and failure of therapy (Rabkin & Chesney 1999). Although the minimum threshold of adherence necessary for the clinical effectiveness of HAART remains unclear, available data suggests that patients must take a high proportion (95% or more) of antiretroviral drug doses to maintain suppression of viral replication, that failure rates increase as adherence levels decrease (NAM, 2005).

The MOH and other stakeholders like Churches Health Association of Zambia (CHAZ), Zambia Prevention and Care Team (ZPCT) and others have come up with programmes to improve adherence to ART and QoL. ART focal persons are trained health personnel providing support supervision and coordination of various activities in HIV care and ART services especially in areas such as clinical care, pharmacy and logistics, laboratory, information systems, quality assurance, adherence counseling and fostering community and coordinated linkages. These activities impact directly on adherence as they provide a link between the clients, community based agents and the health facilities providing ART services.

Community Health Workers (CHW) are lay people who have been trained in order to assist the health professionals carry out certain tasks, some of which include voluntary counseling and testing (VCT), ART adherence counseling and referrals for ART or opportunistic infections, additional HIV/AIDS-related tasks like directly observed therapy and linking the HIV positive clients to recognised support group. Some nongovernmental organisations involved in training of CHWs include Zambia Prevention and Care Team (ZPCT) which developed an innovative approach of training community volunteers to provide adherence support at the facility and community levels. The volunteers are referred to as Adherence Support Workers (ASW) who themselves are people living with HIV and AIDS and on ART and provides adherence to ART to HIV clients (Torpey et al, 2008).

Additionally, a study was carried out by Family Health International (FHI) and Zambia Prevention Care and Treatment Partnership (ZPCTP), Ministry of Health (MOH) and Family Health USA in 2008 conducted in four provinces of Zambia indicated that adherence was achieved by health workers by reducing waiting time for adherence counseling. The report in the same way indicated that follow up of clients within the community was necessary to improve the retention of ART adherence (Torpey et al, 2008).The study also discovered that there is involvement of social support persons such as family, friends, husbands and wives as well as church members.

This strategy has proved to be successful in some areas where family ties and social relationships are close with time. Furthermore the Health Care Provider (HCP) encourages the development of support groups for people living with HIV and AIDS so that they can encourage each other and share experiences on coping mechanism. Moreover HCP encourages the use of home based care strategy in the community. Finally, the Church Based Organisation (CBO) such as Roman Catholics have come up with Home Based Care (HBC) groups which give social and material support as well promoting ART adherence DOTS (Torpey et al, 2008). Furthermore HBC provides basic household support such as fetching water, cleaning the house, washing dishes and basic care for the patient such as monitoring their progress and reporting it, bathing the patient, and, providing emotional support, adherence support, and education (Walker et al 2010). QoL has not been adequately investigated showing that there are still gaps that need to be dealt with.

1.2 STATEMENT OF THE PROBLEM

Despite the measures employed by the Government and Non-Governmental Organizations to improve adherence to ART and AIDS, the quality of life for people infected and affected by the HIV pandemic has remained poor while the prevalence has remained high The prevalence percentage of HIV rates among the population ages 15 to 49 had reduced from 15.7% in 2007 to 13. 6% in 2008 and 3.5% in 2009, and 2012 (UNICEF, 2009). From 2007 to 2008, the number of PLWHA was 920,000 and increased to 1 100 000 in 2009 and 2010 (UNICEF, 2009). From 2011 to 2012 the number increased to 1 327 995 (Zambia UNGASS report, 2012).

The total number of people living with HIV continues to rise, due to both new infections and the fact that increased access to antiretroviral therapy (ART) allows a larger number of HIV-infected people to live longer (UNICEF,2012).

There is a notable increase in the prevalence of diseases that are considered opportunistic infection such as tuberculosis in adults living with HIV and AIDS. The high HIV prevalence of 14.3% countrywide and 22% in the capital, Lusaka continues to fuel the TB epidemic with WHO estimating that 70% of Zambian TB patients are infected with HIV. Tuberculosis is a leading cause of death among HIV-infected persons (CIRDZ, 2012). The death rate due to HIV/AIDS infection was 56,000 in 2007, 45,000 in 2009 and 46 000 in 2010. This shows an increase in the number of adults and children who died of AIDS during the given years (CSO, 2012)

Further, there is a trend of seeking health care late hence by the time several individuals come to hospital, their CD4 count is far too long and the viral load very high. This contributes to progression of disease and poor quality of life. Poor quality of life is further compounded with poor adherence to antiretroviral medications. However, very few studies have been conducted to determine the quality of life and/or adherence to antiretroviral medications. Therefore this study is aims to determine the adherence to ART and QoL among people living with HIV and AIDS in Zambia.

1.3 ANALYSIS OF INFLUENCING FACTORS

A number of factors have been associated with ART adherence and quality of life and are divided into three intersecting categories namely: service delivery, disease related, and social factors.

1.3.1 SERVICE DELIVERY FACTORS

1.3.1.1 Work Load

Workload is the amount of work that has to be done by a particular person in a specific time (Hornby, 2011). In this case workload refers to the amount of work assigned to the health workers in a specific period at ART clinic. When there is increased workload at ART clinic as a result of the increased number of clients and shortage of health personnel the effect are as follows:

1) long waiting time for clients to be receive health services

2) Burnout on the health care provider

3) Inadequate time for individual counseling

4) It would be difficult to monitor the clients'adherence to ART.

On the hand low workload leads to improved delivery of health care services; clients'waiting time will be reduced, improves the morale of health care providers, the health care providers will have enough time to offer individual counseling and be able to monitor adherence.

1.3.1.2 Staffing.

Staff is defined as the number of people working in a place or organisation. In the health sector the WHO and MOH recommends a staff population ratio of 1:5000 for doctors, 1:700 for nurses and 1:8000 for pharmacist. The existing human resource capacity in Zambia is far below recommended cadre to population ratio with existing levels of 1:17589, 1:8064 and 1:473454 for nurses, pharmacists and doctors respectively.

When the ART clinic is well staffed the clients will receive quality health care services. This includes individualized counseling and consistency in the delivery of health care services to the clients. A well trained staff in ART will provide quality health care services to clients.

The shortage of staff consequently leads to work over load given the high number of people living with HIV AND AIDS seeking the health services. This means that the delivery of health care is undermined leading to poor adherence to ART and quality of life.

1.3.1.3 Attitude of staff

An attitude is a relatively enduring organization of beliefs, feelings and tendencies towards socially significant objects, groups, events or symbols. According to the ABC model, attitude has three components: affective component (involves a person's feelings and emotions), behavioral component (has to do with how the feelings influence the actions) and the cognitive component (which deals with a person's belief and knowledge) (McLeod, 2009).

With an increasing number of patients seeking services and treatment for HIV, the need to achieve and maintain quality of care presents major challenges to health care providers. Quality of care is dependent upon multiple factors, including the healthcare provider's attitude in addition to other factors like the attributes of the work environment; client behavior, the provision of structure, space, and the necessary tools, equipment, and supplies which enable health care providers to do their jobs well. The attitude of staff has an impact on how one performs as a part of the health care team.

Poor health care provider's attitude contributes to underutilization of health facilities and harmful health practices. Despite the dissemination of information on drug toxicities, treatment failure, national guidelines, and treatment algorithms If the staff attitude is poor; health-care performance is inadequate, adherence to guidelines is poor and interventions are not implemented to prevent sickness and death. On the other hand good staff attitude attracts clients to the health facility and they would be able to have confidence in the services rendered by such staff. The clients find it very easy to develop a good rapport with the health care providers with good attitude towards work, consequently they will find it easy to open up, share their concerns and experiences.

1.3.1.4 ART clinic

An Art clinic is a medical centre that offers specialized health care to HIV/AIDS clients. It is usually attached to the hospital or clinic but offers its services in a designated place. A well located ART clinic in terms of distance and locality leads to good attendance of clients seeking Art services as they are able to receive treatment in one place where there is privacy and confidentiality. Being attended to in one place makes it easier for health care providers to attend to the clients on time and ensures continuity of care. When the ART clinic is close to the client's home or place of work, there is minimal cost of getting there and reduced time to reach the centre (Nemecheck and Tritle, 1998). However, the specific location of the ART clinic can sometimes lead to stigmatization hence some clients may shun away from seeking health services. This can lead to inconsistent review attendance thereby compromising with continuity of care.

1.3.1.5 Type of medications

Type of medication in this study means the ART regimen of three or more ARV, s (Grierson et al., 2000).The ARVs commonly used in Zambia known as Highly Active Antiretroviral Therapy (HAART) consists of a combination of three drugs from at least two different classes namely Nucleoside Reverse Transcriptase Inhibitors (NRTIs) such as, Zidovudine (AZT), Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) such as, Nevirapine (NVP), Protease Inhibitors (PI) such as Lopinavir/r (LPV/r). The other types of medicines are Fusion inhibitors such as Enfuvirtide, CCR5 inhibitors such as Maraviroc and Integrase inhibitors such Raltegravir.

The choice of drugs will consider the following: the initial choice must be individualized based on the strength of the supporting data on the following criteria; regimen potency, tolerability with low adverse effects profile, drug interaction, convenience and adherence likelihood, potential for alternative treatment option if initial regimen fails (initial protease inhibitor – sparing regimen),availability, and cost.

ARV's recommended first line regimens include: First Line Therapy;Tenofovir (TDF)/Emtricitabine (FTC)/Nevirapine (NVP),Tenofovir (TDF)/Emtricitabine (FTC)/Efavirenz (EFV),Abacavir (ABC)/Lamivudine (3TC)/ Niverapine (NVP),Abacavir (ABC)/Lamivudine (3TC)/Efavirenz (EFV),Second line therapy ; Tenofovir (TDF)/Emtricitabine (FTC)/Lopinavir(LPV) or Ritonavir (r^2),Abacavir (ABC)/Didanosine (ddI)/ Lopinavir(LPV) or Ritonavir (r^2) (MoH, 2009). The goal of the type of medication depends on the clinical stage and to maximally suppress viral replication to undetectable levels for as long as possible.

The good effect of type of medication is the possibility of a client's adherence to a given regimen, declines with the frequency of dosing, severity of side-effects and the complexity of the regimen (Williams and Friedland, 1997 and Duggan, 2006). Simple regimens and regimens that 'fit into' a patient's lifestyle enhance adherence. Clients talk of "incorporating the regimen into their lives and of it becoming a way of life" (Erlon and Mellors, 1999). As a regimen increases in complexity, its problem makes it difficult to integrate into daily living (Grierson et al., 2000).

Some of the bad effects of the type of medication are drug hypersensitivity and regimen-associated toxicity a common reason for sub-optimal adherence as reported in many studies. The side-effects associated with each individual ARV drug have been well acknowledged and, while not common for every client, can be predicted. While these side-effects usually settle after the first few weeks of therapy, for some people they still persist. The expectation and fear of side-effects also have an impact on adherence. Poor adherence has also been associated with client's' desire to avoid uncomfortable side-effects (like sweating) in certain situations such as on a date or at a job interview (Burgos et al., 1998).

1.3.1.6 Number of pills

Number of pills this is the amount of the actual tablets the client is taking for ARV treatment. For clients on ART, a classic combination of medicines consists of three types of ARVs, plus other medication to prevent opportunistic infections. To achieve the number of pills, pill counts can be counted in clinic when they come for review or at unannounced home visits.

Pill count adherence is usually calculated by counting the remaining doses of medication and assuming that remaining pills in excess of what is expected represent missed doses. Pill counts are more easily performed if the patient uses a pill organizer; remaining medication in compartments from past days indicates missed doses.

Pharmacy refill data can serve as an adherence measure by providing the dates on which antiretroviral medications were dispensed. These dates can be provided by the pharmacy or the insurer. In the event that refills are not obtained in a timely fashion, it is assumed that the patient is not taking medication between refills or is missing doses in a way that allows the medication to last longer than it should. This provides a less intrusive means of measuring adherence than most other measures

The effect of taking correct number of pills is when client adhere to the pills-taken criterion if he/she reported taking 95–100% of prescribed ARV tablets during the recommended such as two weeks, one month and three months. This can lead to a high pill burden, taking medicine two times a day, dietary, large capsules or tablets, and precise storage instructions. The density of this regimen may have a considerable impact on a client's capacity to adhere. Supplementary medications taken for symptomatic relief (such as analgesics, cough remedies and other common treatments) in clients with advanced disease further add to the pill burden and toxicity (Grierson et al., 2000).

Clients who reported taking less than 95% or more than 100% of prescribed pills were deemed non-adherent. Moreover such clients are prone to developing opportunistic infections.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, and not taking the correct dose of any drug (WHO, 2007).It is alleged that a person who takes antiretroviral drugs inconsistently will obtain only marginal advantage, but will experience similar side effect and will potentially limit their future treatment options and that clients who stop taking ARV completely will quickly lose any benefit they may have received in terms of improved immunity as the virus flourishes and CD4+ cells are destroyed.

1.3.2 DISEASE RELATED FACTORS

1.3.2.1 Opportunistic infections

People's bodies harbor many pathogenic organisms such as bacteria, protozoa, fungi, and viruses. When our immune system is working, it controls these organisms. But when the immune system is weakened by HIV disease or by some medications, these organisms can get out of control and cause health problems. HIV weakens the immune system so that opportunistic infections (OIs) can develop. If you are HIV-infected and develop opportunistic infections, you might have AIDS. The most common OIs are listed here, along with the disease they usually cause, and the CD4 cell count when the disease becomes active:

1) Candidiasis (Thrush) is a fungal infection of the mouth, throat, or vagina. CD4 cell range: can occur even with fairly high CD4 cells.
2) Cytomegalovirus (CMV) is a viral infection that causes eye disease that can lead to blindness.CD4 cell range: under 50.
3) Herpes simplex viruses can cause oral herpes (cold sores) or genital herpes. These are fairly common infections, but if you have HIV, the outbreaks can be much more frequent and more severe. They can occur at any CD4 cell count.
4) Malaria is common in the developing world. It is more common and more severe in people with HIV infection.
5) Mycobacterium avium complex (MAC or MAI) is a bacterial infection that can cause recurring fevers, general sick feelings, problems with digestion, and serious weight loss. CD4 cell range: under 75.
6) Pneumocystis pneumonia (PCP) is a fungal infection that can cause a fatal pneumonia. CD4 cell range: under 200. Unfortunately this is still a fairly common OI in people who have not been tested or treated for HIV.
7) Toxoplasmosis (Toxo) is a protozoal infection of the brain. T-cell range: under 100.
8) Tuberculosis (TB) is a bacterial infection that attacks the lungs, and can cause meningitis. CD4 cell range: Everyone with HIV who tests positive for exposure to TB should be treated.

1.3.2.2 Cluster Differential (CD4) count

CD4 count is the number of T-helper cells in a cubic millimeter of blood. A normal range of CD4 count is from 500 to 1,500 cells per cubic millimeter of blood. Along with other tests, the CD4 count indicates how strong the immune system is to fight infection, the stage of HIV/AIDS disease, guides treatment, and predicts the disease progression. A high CD4 count helps to reduce the chance of developing of opportunistic infections such as Tuberculosis among others. HIV disease and extend life in that the immune system is able to fight any infection that may attack the body.

HIV infection progresses to AIDS disease if the CD4 count is going down. A CD4 count below 350 cells/mm is an indication that the immune system is getting weaker to fight infection which leads to getting opportunistic infections like Tuberculosis, PCP, Cryptococcal Meningitis, Kaposis Sarcoma, and Herpes Zoster among others. The CD4 counts can sometimes drop dramatically, even going down to zero. The test may however not always correspond with how well one is feeling as some people can have high CD4 counts and have poor health while others can have low CD4 counts and have few complications. It is there more important to monitor any trends in changes to the CD4 cell count over time attention than to any one test result as results fluctuate over time.

1.3.2.3 Stage of disease

Stage at diagnosis is widely considered a primary determinant of ultimate disease outcome. Hence it is important to consider the stage of disease as well in this. The importance of diagnosis provides a guide to prognosis and interventions needed at the different stages. Stage of disease provides guidance in monitoring response to therapy (treatment failure or improvement).

The earlier the disease is diagnosed the better due to the above stage of disease which plays an important role in ART adherence and QoL in people living with HIV/AIDS. Once the disease is diagnosed in the early stages the better for the clients as they will be able to withstand the side effects and other related diseases which might come in at a later stage.

There is also a high possibility that once the disease has advanced the poorer the results since most of the body's immunity has been destroyed.

Lack of symptoms in spite of laboratory proof of the need for ART, may have an unfavorable effect on adherence (Jones, et al., 1999). Most clients with untreated HIV infection have a median AIDS-free time of 11 years, and ART is time and again initiated when clients have laboratory proof of disease progression but are basically asymptomatic and feeling well

1.3.2.4 Viral load

Viral load is a blood test that measures the amount of active HIV in the blood. Viral load and CD4 cell counts are monitored at least every 6 months. The effect of high viral load the higher the value of the viral load test the more active HIV is present. When the HIV/AIDS clients adhere to treatment the viral load goes down below 50 per ml copies to undetectable levels which can make clients that are now free from HIV and stop medication. Moreover the health care provider will use the viral load results to decide when the therapy should be started or if already on treatment, what type of medication is best for that particular client. The viral load in the blood is a good predictor of the likelihood of transmitting HIV to another. The higher the viral load value, the more viral elements there are in tissues and in circulating blood and other body fluids. Clients with HIV are most contagious during the earliest (acute) stages of the infection. The following can affect viral load values, time of day, fatigue, and stress. When clients do not adhere to treatment, the viral load rises sharply above 500 copies per ml leading to immunosuppression and manifestation of opportunistic infections (HIV and AIDS Sharing Knowledge and changing lives 2012).

1.3.3 SOCIAL FACTORS

1.3.1.3.1 Stress

Stress is simply a reaction to a stimulus that disturbs the physical or mental equilibrium. In other words, it's an omnipresent part of life. A stressful event can trigger the "fight-or-flight" response, causing hormones such as adrenaline and cortisol to surge through the body. A little bit of stress, known as "acute stress," can be exciting—it keeps people active and alert.

In small doses, it can help you perform under pressure and motivate you to do your best. The stress response is the body's way of protecting you. When working properly, it helps you stay focused, energetic, and alert. In emergency situations, stress can save your life – giving you extra strength to defend yourself. But long-term, or "chronic stress," can have detrimental effects on health. Excessive stress weakens the immunity system. It also promotes the spread of HIV more quickly in infected persons and prevents antiretroviral drugs from restoring the immune system function (Cole and Zack, 2004). Severe anxiety and depression and are both predictors of sub-optimal adherence (Hirschorn L et al., 1998).

1.3.3.2 Hospital admissions

Hospital admissions is the formal acceptance by a hospital or other in-patient health care faculty of a patient who is to be provided ,board and continuous nursing service in an area or hospital faculty where patient generally reside at least overtime (Hornby,2011). When there is good adherence to ART there is less hospital admissions. This as a result of improved immunity evidenced by low viral load and increased CD4 count. When adherence is poor adherence, there is an increase in the hospital admissions due to lowered body immunity evidenced by opportunistic infections which require prompt treatment (Hellinger 2007).

1.3.3.3 Social support from the family and church

Social support refers to the encouragement the patient receives from his family members, friends and the community as a whole (Wanjohi, 2008). It is another crucial component of HIV/AIDS care.

Social support has been identified as one of the most important motivators of adherence and quality of life among the people living with HIV/AIDS. Before starting patients on HAART, health care providers are encouraged to assess the patient's support system and to find out if the patient has disclosed his or her HIV positive status to significant people as disclosure paves way for social support. Supportive family members or friends can help remind patients to take their medications and assist with management of adverse effects. For patients who have accepted their HIV infection as an important priority in their lives, taking medications can become routine despite other potential adherence barriers (M.O.H, 2007).

Several studies reviewed showed a strong positive relationship between social support and adherence and QoL among the people living with HIV/AIDS. Adherence to ARV medication increased with social support. A study conducted by Bruce (2007) in Australia found a strong association between social support and adherence and QoL among people living with HIV/AIDS. They all belonged to HIV/AIDS support groups; they had treatment supporters and were visited on a regular basis by their treatment supporters. According to Wanjohi 2008, Patients' social situation may have a significant impact on their ability to consistently attend their clinic appointments for refills. Attendance to clinic appointments will more often not be regular in an unstable social environment.

There is the need to identify trusted family members, partners and friends as treatment supporters who will assist with patients' appointment keeping, provide them with emotional support and may sometimes represent them when they are too ill to attend the clinic for their refill. Employment, higher income, satisfaction with social support, regardless of the source of that support, and problem-focused coping were associated with a significantly better QoL (Susan, Mohr, Jeffrey, Justis, 2007).

Living alone and a lack of support have been linked with an increase in sub-optimal adherence (Williams and Friedland, 1997), and social isolation is predictive of sub-optimal adherence.

On the other hand 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 (Motashari et al., 1998). Emotion-focused coping, avoidant coping, hopelessness and AIDS were predictors of poorer QoL (Susan et at, 2007).

1.3.3.4 Religion

Religion is the belief of in the existence of a god or gods, and the activities that are connected with the worship of them. Or it can also be defined as one of the systems of faith that are based on the belief in the existence of a particular god or gods: the Jewish religion, Christianity, Islam and any other world religion.

Spirituality and religion teaches a person that there is significant meaning to life even after diagnosis as it helps the person to let go those things that were once an important part of their life before diagnosis but no longer fit their life after diagnosis (Cichocki 2010).

Most of the clients with HIV and AIDS have significant depressive symptoms, and that significant depressive symptoms are associated with having greater health worries; less comfort with how one contracted HIV; more HIV-related symptoms; less social support; and lower spiritual well-being. (Yi, Mrus and Wade, 2006).

Spirituality/religion is an explanation for men and women affected by HIV. It is connected generally with positive feelings (e.g., hope, peace), other than also with some negative ones (for example feeling punishment from God or feeling disliked by a religious group). Spirituality/religion has also been made known to be positively linked with health outcomes (for example long survival, health behaviors, less distress, and lower cortisol levels) as well as with the determination to be alive in clients with HIV/AIDS. Even though spiritual and religious coping appear to play a part for clients with HIV/AIDS, a deeper understanding of exact pathways through which spirituality/religion affects clients with HIV/AIDS is still lacking (Pargament, 2004, Lorenz, 2005)

1.3.3.5 Social economic status

Social Economic status is the position of an individual on a social-economic scale that measures such factors as education, income, type of occupation; place of residence, and, in some populations, heritage and religion (Hornby, 2011). HIV status often has a negative impact on socioeconomic status by constraining an individual's ability to work and earn income. Lack of socioeconomic resources is also associated with risk factors for neuropsychiatric dysfunction, such as exposure to environmental toxins and injuries. These factors can make persons with HIV more vulnerable to the central nervous system effects of the virus, including more rapid cognitive decline and onset of dementia (Satz, 1993). This makes clients of lower SES with HIV have increased morbidity and mortality rates. Research suggests a correlation between low SES and earlier death from HIV/AIDS (Cunningham et al., 2005).

A lack of socioeconomic resources is linked to the practice of riskier health behaviors, which can lead to the contraction of HIV. These behaviors include earlier initiation of sexual activity and less frequent use of condoms (Adler, 2006).

Persons of low social economic status have shown to have shorter period of survival with a variety of opportunistic infections than a person of higher social economic status. A client with sound economic status is likely to live longer and have few opportunistic infections. Accordingly, individuals of higher SES levels experience slower progression of HIV infection (Schechter et al., 1994).

1.3.1.3.6 Age

Age is the length of time that somebody has existed from the time of birth, usually expressed in years (Encarta, 2008). Age may influence adherence in that with the exception of the most elderly, adherence increases with age as the client is able to understand the reason for taking medication. Sub-optimal adherence shows a positive association with being younger (Jones et al., 1999) as the young may have difficult to comply with ART adherence because they may not be able to remember medication time hence their quality of life decreases.

Aging process has an effect on the body immunity in that the older one advances in age; the higher are the chances of having lowered immunity due to debilitating immune organ functions. . Children due to their young age also have lowered immunity because their immune system may not be fully matured to produce antibodies to fight infection. However ART adherence helps to combat infections as the viral load goes down and the CD4 count rises (Bennett, 2008).

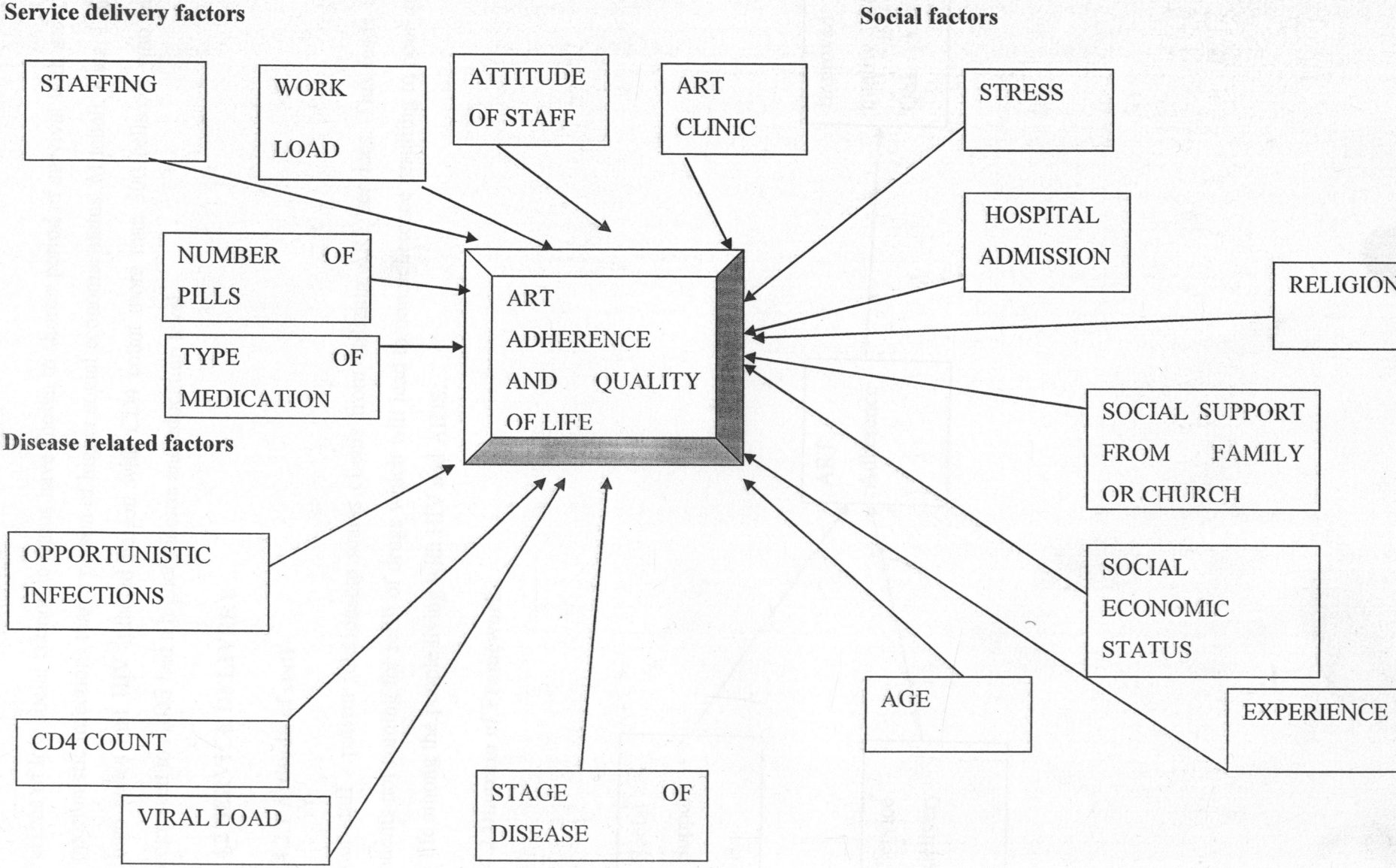
1.3.1.3.7 Experience

Experience is the knowledge and skill that one gains through doing something for a period of time. Clients who have been on ART for a long time devise mechanisms of coping with ART effects however the newly diagnosed patients find it difficult to cope with the effects of ART hence they are more likely to develop opportunistic infections easily.

The personal experiences, such as adjusting to being HIV positive, living with illness, fears, hopes and secrecy may affect the health of a client by either reducing the CD4 count or being prone to opportunistic infections among others.

Moreover, relationships with society, such as the reactions of family, friends, colleagues, and neighbors, the wider community, and sexual partners are important as these contribute to good ART adherence and improving quality of life among others. However attitudes of health care providers, such as doctors, nurses, pharmacists, and CHW may either have good or bad effect on the client. For instance if the client's CD4 result is not available at subsequent appointments, it will discourage the client/health care provider as it will be difficult to detect whether it has increased or reduced.

3.2 Analysis Diagram



1.4 THEORETICAL/CONCEPTUAL FRAMEWORK

1.4.1. Social economic status

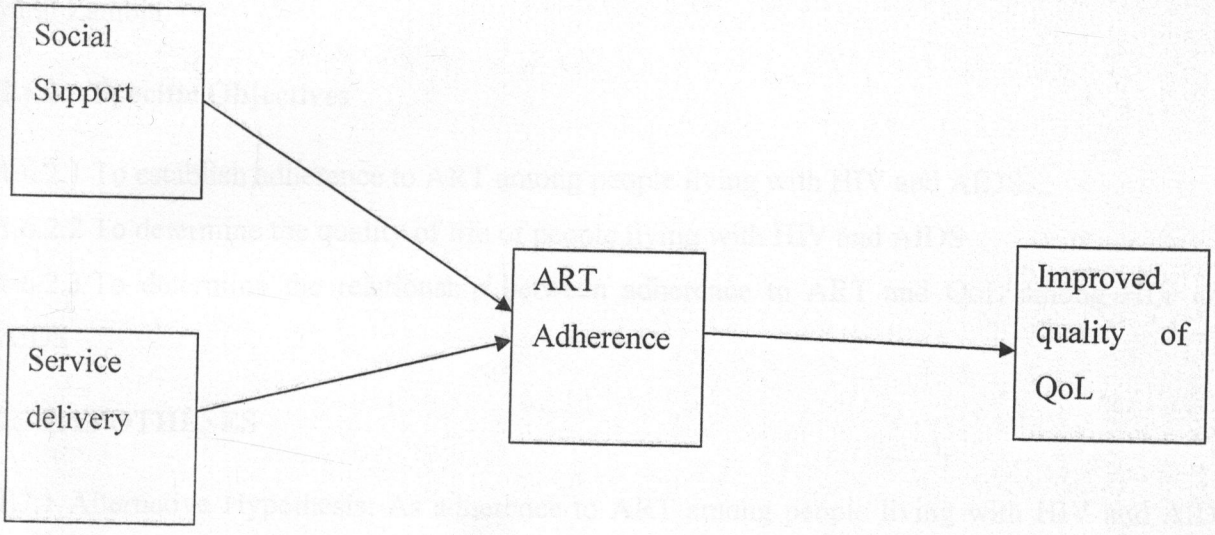
Persons of low social economic status have shown to shorter period of survival with a variety of opportunistic infections than a person of higher social economic status. Mitchell, Katz, Linn, and Ringo states that HIV infected person with CD4 count more than 500 cells/cc^3 who had not progressed to AIDS had a higher income and education level.

1.4.2 SERVICE DELIVERY

1.4.2.1 Attitude of staff

Poor staff - patient relationship scares clients from utilizing ART services. This leads to the patients not coming for refill of drugs which will lead to non adherence resulting to poor quality of life among the people living with HIV and AIDS.

1.4.2 **Diagram of Framework**



1.5 JUSTIFICATION

This study is designed to investigate relationship between adherence to ART AND QoL among people living with HIV and AIDS. In Zambia this is the first time that the relationship between adherence to ART and QoL of PLHWA is being studied in Mwinilunga, Lusaka, Livingstone and Chikankata. In Zambia a study was conducted to determine the QoL of Zambians living with HIV and AIDS which did not handle the issue of the relationship between adherence to ART and QoL. As a result this study will provide baseline information with a view to systemically integrate QoL into information, education and communication (IEC).The study will provide information on prevalence and factors that influence adherence to ART and quality of life among people living with HIV/AIDS. This information will be useful to other scholars doing studies in this area and for planning intervention and effective strategies for maximizing adherence to ART and improving quality of life.

1.6 RESEARCH OBJECTIVES

1.6.1 General Objective

To determine ART adherence and quality of life in people living with HIV/AIDS in urban and rural Zambia.

1.6.2 Specific Objectives

1.6.2.1 To establish adherence to ART among people living with HIV and AIDS.

1.6.2.2 To determine the quality of life of people living with HIV and AIDS

1.6.2.3 To determine the relationship between adherence to ART and QoL among HIV and AIDS

1.7 HYPOTHESES

1.7.1 Alternative Hypothesis: As adherence to ART among people living with HIV and AIDS increases QoL of life will also improve.

1.7.2 The null hypothesis: There is no relationship between adherence to ART and QoL.

1.8 CONCEPTUAL DEFINITION OF TERMS

1.8.1 Adherence

This is defined as the "extent to which a client's behavior coincides with the prescribed health care regimen as agreed through a shared decision making process between the client and the health care provider" (WHO, 2010).

1.8.2 ART Adherence

This is the taking of Anti retroviral drugs according to the prescribed regimen (MOH, 2010). There are different types of adherence namely optimal adherence and suboptimal adherence.

1.8.2.1 Optimal adherence

Optimal adherence is the compliance to ART of 95% that achieves the sustained plasma drug concentration that will inhibit viral replication (Paterson, Swindells, Mohre and Breter, 2002).

1.8.2.2 Sub-optimal adherence

Sub-optimal adherence is the reduction in ART regimen of below 95% compliance that does not sustain plasma drug concentration to inhibit viral replication (ibid).

1.8.3 Quality of Life

WHO 2010 defines, QoL as individual perception of their position in life in the context of culture and value system in which they live and in relation to their goals, expectations, standards and concerns. There are different domains namely physical, psychological, social and environmental.

1.8.3.1 Physical domain

Physical domain measures the level of energy, fatigue, pain and discomfort as well as sleep and rest. It also includes the assessment of independence levels which are mobility and ability to take on the activities of daily living. The level of dependence on medicinal substances such medical aids among others and also the work capacity (WHO, 2010).

1.8.3.2 Psychological Domain

Psychological domain looks at broad image and appearance, position, negative and feeling one brings out the level of thinking, learning, memory and concentration. It also includes spirituality and religion/personal belief (WHO, 2010).

1.8.3.3 Social relations Domain

Social relations domain looks at the personal relationships, client's social support and sexual activity (WHO, 2010)

1.8.3.4 Environment

Environmental domain concentrates on financial resources, physical, safety and security, accessibility to quality health and social care. It also looks at the home environment opportunities for acquiring new information and skills, and participating in recreation (WHO, 2010).

1.8.4 Viral load

Viral load describes the amount of HIV copies in the blood (MOH, 2010).

1.8.5 Undetectable viral load

This is defined as the number of HIV genetic material (Ribonucleic Acid per milliliter of lower than 50 copies per ml.This does not mean that there is no HIV in the sample but that the number of copies is somewhere between zero and fifty (MOH, 2010).

1.8.6 Opportunistic infection

These are infections which take advantage of the weakened immune system causing devastating illnesses. Most life OIs occur when the CD4 count is below 200 copies per ml (MOH, 2010).

1.8.7 Cluster differentiation (CD4)

CD4 are type of lymphocytes (white blood cell) which are an important type of the immune system (MOH, 2010).

1.8.8 Antiretroviral therapy (ART)

This refers to treatment with drugs that specifically attack the HIV (WHO, 2007).

1.9.1 Client

In this study any person taking ART will be referred to as a client.

1.9.2 Health care Provider

It is any health worker giving care to the people living with HIV and AIDS.

1.9.3 Human Immune Virus (HIV).

HIV is a virus that causes AIDS. It further infects white blood cells, reproduces very fast and attacks and kills CD4 cells (MOH, 2010).

1.9.4 Ante retroviral (ARVs)

This refers to the combination of ARVs which are used to fight HIV and help to control the HIV virus in the blood (MOH, 2010).

1.9.5 AIDS

AIDS is the disease which results from HIV infection. A chronic manifestation of a number of diseases that result from HIV infection

.9.6 Community Health Worker

Community Health Workers (CHW) are lay people who have been trained in order to assist the ealth professionals carry out certain tasks which include voluntary counseling and testing VCT), ART adherence counseling and referrals for ART or opportunistic infections

1.8 VARIABLES

1.8.1 Dependent Variable

Dependant Variable is the response, behaviour or outcome which the researcher wants to explain or predict. The dependent variable in this study is quality of life (Burns and Groove, 2009).

1.8.2 Independent Variable

Independent variable is a variable that influences other variable .The independent variable in this study is adherence to ART (Burns and Groove, 2009).

TABLE OF VARIABLES

VARIABLE	INDICATOR	CUT OFF POINTS
DEPENDENT VARIABLE		
Quality of Life	Poor	Score 0-299 on QoL questions
	Good	Scores 300-600 on QoL questions
INDEPENDENT		
ART Adherence	Poor	Takes Less than 95% of actual days of treatment.
	Good	Takes more than 95% of actual days of treatment.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 INTRODUCTION

Literature review is a key step in every research process. It is referred to as an extensive, exhaustive and systematic examination of publications relevant to the research project (Basavanthappa, 2007). In the context of a research paper or thesis, literature review is a critical synthesis of previous research. The evaluation of the literature leads logically to the research question.

The purpose of literature review is to convey to the reader what is currently known regarding the topic of interest. It also gives the researcher clues to the methodology and instruments that people used before and therefore provide information on what has been tried in regard to approaches, methods and what types of data collecting instruments exist and do not work. It also helps the researcher to refine certain parts of the study.

The literature review for this study focused on what other researchers have studied and written on the relationship between ART adherence and quality of life. It also looked at the dependant variable (quality of life) and independent variable (adherence to ART).

2.2 QUALITY OF LIFE

The World Health Organisation (WHO) has defined Quality of Life (QOL) as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, standards, expectations and concerns (WHO, 2011). This definition emphasizes the importance of an overall subjective feeling of well-being pertaining to aspects of morale, happiness and satisfaction. QOL, therefore, relates to both an adequacy of material circumstances as to how satisfied an individual is with these circumstances of life (Kohlie etal,2005).It usually refers to the degree to which a person's life is desirable or undesirable (Diene,2007).

QOL comprises a collection of interacting objective and subjective dimensions, which may change over time in response to life, health events and experiences. Quality of life can also be explained by asking questions such as, (1) how much is your income? (this suggests objective aspects of QOL) and (2) how satisfied are you with your income? (the question conveys the subjective aspects of QOL). The assessment of QOL as a measure of treatment outcomes has become popular in Medicine because the concept of QOL itself captures exactly the notion that the ultimate goal of medical intervention is to improve the well-being of the patient (Olusina and Ohaeri, 2007).

Through reflection on the sense of well-being and satisfaction experienced by people under their current life circumstances, the assessment of QOL aims to provide a comprehensive evaluation of the individual's well-being, which includes an assessment of their role functioning, community integration and personal adjustment. (Olusina and Ohaeri,2007).This implies that HIV and AIDS do not only affect the physical well-being of PLWHA, but also the overall quality of life and the perceptions of various aspects of their lives and daily living.

Several instruments for measuring QOL have been developed and described, but very few studies had used the WHOQOL-Bref (World Health Organisation Quality of Life Brief Scale) instrument in people living with HIV and AIDS (AIDS care 2007). Its documented use in HIV-positive patients in Nigeria is limited and the use of the disease-specific version was reported only recently (Fatigen etal, 2009).

The majority of quality of life studies on PLWHA in developing countries do not use the WHOQOL-Bref; the general opinion from such studies is that socio demographic and socio-economic variables, as well as the presence, number and severity of HIV symptoms, and the use of highly active antiretroviral therapy (HAART), is reported to have a significant impact on the quality of life of PLWHA(Liu etal,2007).In such studies, it was reported that QOL summarized the judgements people make to describe their experiences of health and illness. These judgements include that expectations are learnt from experiences and are therefore highly specific, and they vary between individuals subject to differences in psychological, economic, demographic, social, and other cultural factors (Louwagie etal, 2007).

The perception of QOL is not a function of only physical health but is dependent on factors such as age, sex, educational level, and income and employment status, independent of the health status. Louwagie and colleagues reported in a study on HIV-positive patients that unemployed people had lower health index scores than employed people. This could be attributed to the fact that people who are sicker are more likely to quit their job, and not that unemployment itself affected well-being directly. Adedimeji and Odutolu (2005) used a qualitative approach to determine the extent to which social, economic, psychological, health-resource and environmental factors contribute to the improvement of the quality of life of PLWHA. It was assumed that individuals who have access to care, social support and ARV therapy will experience better QOL than those who do not have the access. The study approach generated a pool of ideas of what PLWHA considered important in quality of life. Results of ranking of factors determining their QOL showed that availability of care and social support from family members and close friends are rated the highest (93%); financial pressure (89%), stigma and discrimination (87%), health concerns and counselling (85%) where also rated highly. In the same study the desire for care and support considerably influenced the willingness to disclose information about the person's HIV status. Where support is not expected, information about the HIV-positive status is withheld.

The provision of care and support is largely influenced by the prevailing cultural norms amongst the people concerned who are burdened with the task of providing care for those who are ill. Given the ignorance and stigma that surround HIV and AIDS, such care is provided only by close relatives of PLWHA who consider it an obligation to take care of their own; however, it is important to note that such level of care is not universal for all PLWHA. Some respondents reported that they were isolated and rejected by the community and family members. The findings of Adedimeji et al. 2005 confirm earlier studies that psychosocial factors and social support do influence health outcomes of HIV infected individuals. There is evidence that social support affects health outcomes either through its effects on the function of the immune system or through its effects on self-care activities and other illness behaviours. Obtaining social support may, however, be problematic for some persons because of AIDS-related stigma.

The findings about the psychosocial effects of testing positive for HIV are important when it is considered that psychological and existential issues impact heavily on quality of life of PLWHA. Constant worry, stress and anxiety contribute to poor QOL, but these could also become catalysts for adopting health enhancing behaviour. Similarly, continued stigma and social isolation still pose considerable barriers to disclosure of HIV status. It has implications for access to treatment facilities, compliance with medication, and generally hinders preventative efforts directed at HIV

Louwagie et al 2007, in a cross-sectional analytical study on South African adults with HIV infection, compared the health-related quality of life of HIV-positive patients receiving HAART with those who were awaiting treatment, and highlighted the influence of HAART on improving symptoms of HIV infection and quality of life of the respondents (AIDS Care, 2007). The study revealed that patients who were receiving HAART reported better QOL scores for most of the domains assessed, and reported significantly less problem scores than those not yet on HAART. It has also been documented that the presence, number, and severity of symptoms are major determinants of quality of life in HIV infected patients, and that worse symptoms are associated with worse perceptions of QoL (Carr et al, 2007).

There are four main domains which measures the overall quality of life and the general health of a client, namely; physical, psychological, social relations and environmental domains (WHO, 2007). Each of these domains contributes to ones overall assessment of the QoL and depends on experiencing connectedness in the four major interrelated domains (Ideal Fitness Journal, 2007).

Physical domain measures an individual's aspects of health such as physical appearance which signifies a person's wellbeing or ill health, the body's energy level, fatigue, pain and discomfort. The other components of this domain include assessment of independence and the ability to take on the normal activities of daily living such as breathing, eating and drinking, mobility, exercises, communication, personal cleansing and dressing as well as rest and sleep (Roper, Logan & Tierney, 2004).

Psychological domain looks at the person's psychological health, self esteem, adjustments to life experiences, cognitions, and evaluations concerning the self, self-control and feelings.

These feelings can be positive or negative and when measured signify the person's capability having hope or not having it. The other components are learning new things, memory function in terms of retrieving the recent and past life events and concentration capabilities.

The social relations domain looks at the personal relationships and social interaction with other people. This is depicted in a person's sense of identity in relation to family, other people around, cultural practices, gender, social class, social/political systems, sexuality and geographic location. These connections between individuals and the social, political and cultural structures have an impact in that they shape people to the acceptable standard of life in society. Spirituality is another factor in the social relations domain which encompasses an individual's spirituality, religion and personal belief about forgiveness, blame, concerns about the future, and death and dying. Spiritual belief can also be reflected in personal values, personal standards of conduct instill a sense of hope, guidance and comfort to the person (WHO, 2008).

Environmental domain concentrates on financial resources, the general physical resources, safety and security and the ability to access quality health and social care. It also looks at the home environment; opportunities for acquiring new information and skills, and participating in recreation and leisure activities (WHO, 2008).For QoL encompassing the four domains and its element to be achieved, people living with HIV and AIDS need to adhere to ART.

2.3 ART ADHERENCE

Art Adherence is the taking of Anti retroviral drugs according to the prescribed regimen (MOH, 2010).Practitioners and researchers similarly recognize that client adherence is associated with quality of life. It may prove difficult for a client to remember to take their pills several times a day as they may forget as the treatment may not fit into their daily schedule. On the other hand if the course of treatment works then the client may feel that they do not need any more medication because the symptoms are gone and as a result they stop taking the medication. Negative side-effects and concerns over the long-term effects of treatment can also lead to a client deciding to stop treatment. Others quit when the treatment is taken over a long period of time. It is important to note that the risk of a client in stopping long-term treatment grows greater when that treatment stabilizes a condition, rather than giving relief from symptoms (Carter, 2004).

Adherence is the key to the effectiveness of the antiretroviral therapy because, in order to ensure that the viral load in a client is kept at undetectable levels, high levels of adherence are required (Altice & Friedland, 1998; Bangsberg et.al., 2001). In an acute illness, the rewards or benefits of complying with therapy are immediately apparent to the client, thereby creating a sense of accomplishment that reinforces adherent behaviour (Hecht, 1998). Such a reinforcement may be lacking or may reduce over time in chronic diseases, as clients are required to remain adherent for prolonged or indefinite periods of time. Maintaining good adherence among clients requires vigilance. Research in Nigeria conducted by the University of Abuja Hospital and the University of Maryland Institute of Human Virology, found that one in five patients reported adherence of less than 95% (judged by how promptly people came back for more tablets, the so-called refill rate) (Farley, 2007).

The factors which may have contributed to non adherence to ART are inconvenient dosing frequency, dietary restrictions, pill burden, and side effects; patient-health-care provider relationships; depression and psychiatric illness; and the system of care (Rosen S et al. 2007). . A growing body of evidence suggests that social and psychological variables, including social support, are amongst the most significant factors that influence adherence to medical therapy (Janis, 1983; Levy, 1995)

Other factors that were identified include severity of illness, side effects of the medication, duration of the treatment and the complexity of the treatment. HIV-infected clients, because of their physical debilitation and the psychosocial impact of their infection, remain particularly vulnerable to social isolation (CAFOD, 2008) Adherence to therapy is difficult to measure accurately and any reported percentage of adherence is usually only estimation. There are some basic techniques that have been developed for quantifying adherence, all of which have limitations, which will be discussed briefly in the next few paragraphs.

Some studies show significant relationships between data from self reports and viral-load. Other studies that compare data from self-reports to pill counts or electronic measurements found differences, suggesting that self-reports provide inflated estimates of adherence behaviour (CAFOD,2008).

Client reports on any incidences of missing or forgetting pills are almost always reliable, so self-reports can be helpful for understanding the dynamics surrounding missed medication. Pill counts have been widely used and the return of excess pills provides tangible evidence of non-adherence. However, this requires that the clients return the pill packaging but they tend to forget or inadvertently discard them (CAFOD, 2008).

HIV clients are prescribed a number of antiretroviral agents and would be required to bring the container of every medication during every clinic visit. Given the large number of antiretroviral pills prescribed, pill counting for the entire regimen can be cumbersome and time-consuming (Berg et. al., 1998). Furthermore, many of the clients utilize pill boxes rather than taking pills directly from the bottles. There have also been reports that clients other than those with HIV, aware of pill counts being conducted, engage in "pill dumping" to appear adherent. As a result, pill counting typically overestimates adherence. In general, 10% of clients report missing at least one antiretroviral dose on any given day and 33% report missing at least one dose within the past month (Bangsberg et. al., 2001).

Assays have been used in clinical trials to measure the last dose taken, however these are often impractical because of their expense and lack of general availability. These assays also measure only recent doses and thus provide limited data. Adherence may be overestimated if clients are more conscientious about taking their medication before a clinic visit (Chesney, 2000).

This method can seem ideal as there can be few errors in counting the number of pills absent from a bottle or drug dispenser. However, it can also be inaccurate because even if the required numbers of pills are gone, the client may have compliant. This could be due to the client discarding some of the pills for whatever reason or the client may have taken all the pills but in a manner other than the prescribed one.

The MEMS caps measure utilizes a computer chip embedded in a specially designed pill-bottle cap to record the time and duration of each bottle opening. MEMS adherence usually is calculated by dividing the number of time-appropriate bottle openings by the number of expected doses over the study period. MEMS appear to be the most sensitive method for detecting non adherence.

However, a number of limitations to the accuracy and practicality of the system restrict its use primarily to research settings. For example, the use of commonly utilized pill organizers or blister packs is impeded because the client must retrieve all doses of the studied medication from the MEMS bottle. Because MEMS usually can assess only one prescribed medication, adherence to the other components of a combination therapy generally is not measured. The number of pills withdrawn at each bottle opening is not recorded. If the client withdraws an additional dose to be taken at a later time, the system may underestimate adherence. Recent studies have attempted to adjust the MEMS adherence calculation to account for extra "pocket doses" removed from the bottle to be taken later.

Despite the limitations of these measurement techniques, adherence data are providing valuable insight into the association between drug taking and viral load, as well as approaches that may be useful for improving adherence (Berg et. al., 1998). Biological markers of adherence refer primarily to plasma concentrations of antiretroviral drugs. Plasma concentrations of protease inhibitors have been significantly associated with adherence behaviour in a limited number of studies, including those in which adherence was measured by self-report, and unannounced pill counts.

Plasma concentrations are limited by their ability to detect only recent adherence behaviour. Furthermore, low concentrations of antiretroviral also may be caused by factors other than adherence, such as malabsorption, drug interactions, and individual metabolic differences.

Pharmacy refill data can serve as an adherence measure by providing the dates on which antiretroviral medications were dispensed. These dates can be provided by the pharmacy and treatment supporters. In the event that refills are not obtained in a timely fashion, it is assumed that the client is not taking medication between refills or is missing doses in a way that allows the medication to last longer than it should. This provides a less intrusive means of measuring adherence than most other measures. A number of studies in the treatment of HIV and other diseases have used pharmacy refill records to assess adherence.

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 more accurately capture the information needed to determine adherence levels (Vitolins et al., 2000).

Studies in African settings have indicated optimal adherence rates (i.e., the proportion of clients who adhered to their ART schedule at least 95% of the time) ranging from 54% to 98% depending on the measure used: Botswana (Weiser et al., 2003: 54%); Nigeria (Daniels, 2004: 79%); South Africa (Ferris et al., 2004: *77%;* Darder et al., 2004: 80%); Uganda (Byakika-Tusime, 2003: 67%; Munganzi, 2004: 98%); and Rwanda (Omes, 2004: 87%).

A number of factors have been associated with adherence to ART and are commonly divided into five intersecting categories (Reiter et al., 2003). These categories are: client variables, treatment, disease characteristics, client-provider relationship, and clinical setting. Client variables include socio demographic factors (age, gender, race, income, education, literacy, housing status, HIV risk factors) and psychosocial factors (mental health, substance abuse, socio cultural issues and support, knowledge and attitude about HIV and its treatment) (Carrieri et al., 2002; Nemes et al., 2003; Murphy et al., 2004; Machtinger and Bangsberg, 2005).Socio demographic and psychological issues have great potential to impact on adherence. For instance, family support and religious beliefs about illness and medication may influence motivation and adherence (Becker, 1990; Haynes, et al., 1996; Chesney, 1997).

The issue of disclosure has also been found to have serious implications for adherence (Ormazu, 2000; Klitzman et al., 2004; Zea et al., 2005).The ability to disclose within the family linked to a supportive family and community environment is important determinants to disclosure.Clients who share status with family members seem to do much better (Malawi Lighthouse). The best impact is when a client shares his/her own story with others (St Francis Community Home Care, Zambia) as reported by CAFOD, 2008.

and food instruction), and the specific type of ARV and medication side-effects. The complexity of the regimen and side-effects caused by it are clearly associated with sub-optimal adherence (Machtinger and Bangsberg, 2005).

Although side-effects have been cited by some studies in developed countries as predictors of adherence, experience of symptoms and views about medications may be complex and may vary according to the type of regimen (Chesney, 2000; Carr and Cooper, 2000; Ammassari et al., 2001; Carr, 2002; Murphy et al., 2004). Symptoms may stimulate the use of medications by acting as a reminder or reinforcing beliefs about the necessity for treatment. However, clients' expectations of symptom relief are also likely to have an important effect. This could be problematic if expectations are unrealistic, or where treatment is given for asymptomatic disease, as occurs with HIV infection (Horne, 2001).

In addition, clients' concerns about the potential harm of ART may be entirely rational. Horne and colleagues have proposed that for some individuals missed doses may be a logical attempt to moderate this risk by taking fewer medications. Clients who understand the rationale for ART and treatment failure report higher adherence levels than those without this information (Anderson, 1999; Horne, 2001). Efforts both to reinforce information provided verbally with written information to take home and to check that information has been correctly understood are likely to be beneficial, as clients commonly misunderstand their health care provider's instructions. One study found that 13% of clients prescribed ART were not taking their medication correctly, despite believing that they were (Bangsberg, 2001). This includes the client's overall satisfaction and trust in the provider and clinic staff; the client's opinion of the provider's competency; the health care provider's willingness to include the client in the decision-making process; the affective tone of the relationship (for example warmth, openness, cooperation); the compatibility of race/ethnicity between client and provider; and the adequacy of referral.

The other factors include the availability of transport, general environment, and flexibility of appointments, perceived confidentiality, and satisfaction with past experience with the health care system. Chesney (2003) found that dissatisfaction with the health services is a predictor of non-adherence.

Other health related factors which affect adherence include: the stage and duration of HIV infection, associated opportunistic infections, and HIV-related symptoms. The severity of the illness could impact negatively or positively on adherence to ART. The challenges around adherence are multi-faceted and there is a growing body of literature which is looking at some of the issues. Some of the factors documented include: costs (cost of laboratory test, transport, registration, lost wages due to waiting times), hunger and nutrition, the need for on-going support for people on treatment, information and mis-information, side effects, the length of time on treatment, and the quality of health service provision (Rosen S et al. 2007).

It is estimated that one quarter (25%) of ART users do not achieve optimal adherence in Africa (Hardon et al, 2007). Where scaling up treatment has been more effective, the evidence has often been more focused on the urban areas. More worrying, another more recent systematic review of African ART treatment programmes calculated that up to 40% of all clients receiving ARVs are thought to have died or discontinued treatment within 2 years of starting on ARVs (Rosen et al. 2007)

Most organizations in the consultation reported that beneficiaries in their programmes were now able to access ARVs. According to (CAFOD, 2008), good levels of adherence within their own programmes, with reported levels of greater than 93% in many cases are reported. Some partners did not have statistical data to share, but commented that adherence was 'good' or 'satisfactory'.

However there were equally several examples of poorer levels of adherence. The Catholic Diocese of Ndola, Zambia, reported on 99.5% level of adherence within their programmes, but a provincial adherence rate of only 60% (Sept 2007). The Catholic Archdiocese of Mombassa highlighted the challenge of adherence in the more rural settings within their programme, with 96% adherence in the urban areas, but only 76% in the rural areas.

Similarly the Ashar Alo society (Bangladesh) commented on weaker adherence in the poorer and more remote areas. The Instituto para el Desarrollo Humano (Bolivia) reported on a study carried out by a local university which indicated only 50% adherence rates (2007 data).

CONCLUSION

From the literature review we have deduced the fact that socio demographic and socio-economic variables, as well as the presence, number and severity of HIV symptoms, and the use of highly active antiretroviral therapy (HAART), has significant impact on the quality of life of PLWHA. Additionally as the viral load reduces, the CD4 count increases, consequently the body's ability to fight infection is enhanced. Therefore, adherence is the key to the effectiveness of the antiretroviral therapy because, in order to ensure that the viral load in a client is kept at undetectable levels, high levels of adherence are required. Equally, a number of factors have been associated with adherence to ART and are commonly divided into five intersecting categories. These include: client variables, treatment, disease characteristics, client-provider relationship, and clinical setting. All factors put together, mean that as the adherence levels increase to optimum levels, the quality of life of people living with HIV and AIDS improves. Additionally in Zambia, QoL could also be influenced by client's spirituality and the level of family support.

CHAPTER THREE

3.0. RESEARCH METHODOLGY

This chapter explains the methodology that was used in order to bring together relevant information that was used to respond the research question. It also explains the research design, research setting, the study population, sample selection, sample size determination, data collection, data quality control, data management and analysis. The chapter, additionally looked at the pilot study, validity and reliability, ethical consideration, and dissemination of findings

3.1. STUDY DESIGN

A research design is a plan, structure and strategy of investigations of answering the research question. The study design chosen depends on the type of problem, the knowledge already available about the problem and the resources available for the study (Basavanthappa, 2007).

The study design was cross-sectional and descriptive. A descriptive design is a non-experimental research designed to discover new meaning and to provide new knowledge when very little is known about a phenomenon of interest and involves a systematic collection and presentation of data to give a clear picture of a particular situation (Polit and Hungler, 2007). A descriptive design was selected because it was appropriate to give a picture of adherence to ART and QoL among people living with HIV and AIDS.

Cross sectional study is a design which is aimed at quantifying the distribution of certain variables in a study population at one point in time (Basavanthappa, 2007). It was chosen because the participants for the study were selected at that particular time and there was no follow up thereafter.

3.2 RESEARCH SETTING

Research setting is a place or area where the research study will be conducted (Basavanthappa, 2007). This study was conducted in Lusaka, Livingstone, Chikankata and Mwinilunga districts at the ART clinics at the hospital respectively.

3.2.1 Lusaka

The study was conducted at University Teaching Hospital (UTH) at the Centre of Excellency in Lusaka. This site was conveniently selected, because the researcher stays within Lusaka and UTH is easily accessible.UTH is the biggest hospital in Zambia, located in the capital city Lusaka approximately 4 km east of the city centre.

Lusaka, the capital city of Zambia has a population of 1, 7 million. Being centrally located, it is the center of most of the political and socio-economic activities of the country. It also serves as the focal transport route both for national and international travel. The languages used mostly in Lusaka are English, Nyanja and Bemba.UTH is the principle medical training institution in the country for Medical Students, Interns, and Postgraduate Doctors. It also provides trainings for Nurses through the Nursing school located within the hospital grounds as well as Clinical Officers through their college located at Chainama Hills College Hospital.UTH has approximately 1655 beds and 250 Baby cots. It provides a full range of primary, secondary, and tertiary health and medical services on both an inpatient and outpatient basis.

In addition it serves as the country's specialist centre receiving referrals from all over the country. The services provided are through the following departments: department of anaesthesia, department of Internal Medicine, department of Obsetrics and Gynaecology, department of Paediatrics, department of Surgery, department of Community Medicine, department of Pathology, radiology department, physiotherapy department, pharmacy department and Blood Bank. Adult Centre of Excellency was initiated in 2005 and by that time it was being run by partners ((CIRDZ). However, UTH department of Medicine has since September, 2011 taken over the running of the centre. It has now been incorporated in the mainstream UTH for the provision of care, support and treatment of HIV infected adults, provide mentorship of National ART sites, and initiate ART in pregnant women who require ART. The centre offers intensive adherence counseling, testing and support for patients identified as high risk by multi – disciplinary teams (MDT), timely diagnosis of OIs and STIs, offer prophylaxis and treatment of OIs and STIs, early identification and treatment of TB.

Adult Centre of Excellency carries out daily clinics as follows: General ART clinic from Monday to Friday morning, adolescents (15 – 19 years) clinic on Tuesday and Wednesday afternoons, and advanced clinic (3rd line treatment) on Thursday and Friday afternoon. On the register as from 31st December, 2002 the centre has recorded 110 adolescent clients and over 6000 active adult clients with 52 patients on 3rd line treatment. The centre has two pharmacies, one for ordinary ART and contrimoxazole which are ordered from Medical store and another pharmacy for the 3rd line drugs ordered directly from ministry of Health headquarters.

3.2.2 Livingstone

Livingstone General Hospital is a second level hospital based in Southern Province with a bed capacity of 325. The hospital serves a population of 1,653,266.It is the main referral centre for Southern Province and Sesheke district of Western Province. It also serves as a first level for Livingstone and Kazungula districts respectively. There are four major clinical services/ departments namely: internal medicine, surgery, pediatrics and child health, obstetrics and gynecology.

There is a comprehensive HIV program that encompasses voluntary counseling and testing (VCT), prevention of mother to child transmission of HIV/AIDS (PMTCT) and provision of antiretroviral therapy. The hospital has among others stakeholders working at the ART clinic such as Center for Disease Control (CDC) and CIRDZ.

The study was conducted at the ART clinic because it was relevant to the research topic. Moreover it was convenient for the researcher because the clinic was easily accessible to the researcher and there were less expenditure concerned due to the fact that the researcher was in the district throughout the period of study.

In addition it was easy for the researcher to administer 50 questioners to the clients as the clinic is conducted daily except weekends by general medical practitioners, clinical officers and nurses among others. The ART clinic has a pharmacy and data system in place which made it easier for the researcher to collect the necessary data for the research.

The ART clinic has a register of all patients enrolled on HAART which was started in 2003 with 71 clients and currently there are 3127 clients. By the end of the third quarter of 2012, the total number of patients enrolled on HAART was 3024.This information was relevant as it helped the researcher obtain information to show that there is relationship between ART adherence and QoL.

3.2.3 Chikankata

Chikankata Mission Hospital is a Salvation Army health institution located in the Southern Province of Zambia under Mazabuka district. It is one of the three hospitals found in Mazabuka district and is a second level hospital situated 61km away from Mazabuka town. Chikankata road is 31 kilometers away from the Livingstone-Lusaka road. The area is rural with no major industries that exist. There is poor road network and limited transportation especially in the rain season due to impassable roads.

The total catchment population of 16 889 reflects the total population of the people Chikankata Mission Hospital serves in terms of health care services. However, practically it serves a total population of about 92,210 people from 25 scattered villages, commercial farms, four rural health centres within the district and two health centres from Siavonga district. Chikankata Mission hospital offers various preventive and curative health services. Chikankata Health Services (CHS) has got 4 major areas of operation which are the hospital, training institutions, Community Health, Development & Research (CHD&R), HIV and AIDS Response Department (HARD) (Chikankata Hospital action plan 2012).

The HIV/AIDS programme at Chikankata Mission Hospital was started in March 1987 following the diagnosis of a skin condition, *Kaposi's sarcoma*, in a patient in 1986. The Anti-Retroviral Therapy (ART) Clinic named *Muka Buumi* ("Mother of Life" in Tonga), together with the Voluntary Counselling and Testing (VCT) services was started on 1st September 2004.

At the start of VCT in 2004, out of a total of 391 people tested, 276 (70.58%) of them were positive for HIV.

In 2005, the percentage of HIV positive result came down to 60.21% (660 positive from a total of 1096 tested). The situation changed for the better in 2006, when for the first time, a lesser number of people tested positive for HIV (37.93%) from the huge total of 2175. The situation remained constant in 2007 when out of 1724 tested 38.22% were HIV positive and in 2008 (37.76% tested HIV positive out of 1533 people that were tested ((Zachungnunga, 2009).

Chikankata area as seen above is no exception to the HIV pandemic with the infection prevalence of 12.97% within its catchment area (Zachungnunga, 2009). There is high HIV prevalence among farm workers (34%), due to the significant number of commercial farms within the area and the migration nature of the work force, which collectively demand for continuous, logistical and sustainable intervention actions in the farms for permanent behaviour change (ibid).

However, Chikankata Mission hospital has been doing very well in terms of making ARV accessible to its HIV positive clients. Among the total 4906 registered HIV positive clients, 72% of them have been put on ART. Mobile ART service is being provided through weekly Mobile Doctors Outreach Trips and daily Primary Health Care visits. In terms of treatment, the intervention is 72% percent taking into account the rest of 28% who are not yet on treatment because of the eligibility criteria which they fail to meet or their CD4 count is still high .The stakeholders for the ART clinic supplies are, MoH, Church Health Association of Zambia (CHAZ), Aids Care Foundation (ACF) and Chikankata hospital (Chikankata ART Clinic Report, 2012). The study was conducted at this site ART services offered at the site were relevant to the research topic and there is good flow of clients because the services are offered Monday to Friday.

3.2.4 Mwinilunga

The study was conducted in Mwinilunga District Hospital ART clinic in Northwestern province of Zambia. Mwinilunga district has three sites which provide ART services. Mwinilunga district hospital was convenient because the clinic was easily accessible by the researcher as it is only 200 meters away from where the researcher was residing during the period of the study.

Furthermore, Mwinilunga ART clinic has been providing antiretroviral therapy longer than Luwi Mission ART and Kalene Mission Hospital ART clinic. Mwinilunga had 1847 people living with HIV/AIDS on their register at the time of the study and started providing antiretroviral therapy in 2004.

The above four sites (Lusaka, Livingstone, Chikankata and Mwinilunga) represent a range of sites where ARVs treatment is provided. And according to National AIDS control programme, these regions constitute high prevalence rates of HIV/AIDS.

3.3. STUDY POPULATION

The study population is the total group of individual people or things meeting the designated interest to the researcher (Basavanthappa, 2007). The study population for this study consisted of all adult patients (18 years and above) both males and females who were getting ART health care services in Lusaka, Livingstone, Chikankata, and Mwinilunga ART clinics respectively.

3.3.1. TARGET POPULATION

The target population is the entire population in which the researcher is interested in and to which he /she would like to generalize the results of the study (Polit and Hungler, 2007).
The target populations were adult males and females 18 years and above a living with HIV/AIDS, on HAART, and accessing ART health care at Lusaka, Livingstone, Chikankata and Mwinilunga ART clinics respectively.

3.3.2 ACCESSIBLE POPULATION

The accessible population is the population of people available for a particular study, often a random subset of the target population (Polit & Hungler, 2007). The accessible population consisted of adult males and females 18 years and above living with HIV/AIDS and on HAART. These were clients seeking ART health care services at Lusaka, Livingstone, Chikankata, and Mwinilunga ART clinics respectively during the study conducted from 1st October to 31st October, 2012.

3.4. SAMPLE SELECTION

Sample selection is the process of obtaining information about an entire population by examining only a part of it (Polite and Beck 2006). This part explains how the districts, clinics and respondents were chosen.

3.4.1. SELECTION OF THE DISTRICT

Lusaka Livingstone, Chikankata, and Mwinilunga ART clinics were preferred because these clinics were easily available to the researchers and there were fewer expenses concerned in view of the fact that the researchers were in these districts throughout the study period. This made it possible for the researchers to collect data within the stipulated timeframe. In particular, clients met the eligibility criteria in the above mentioned the above mentioned districts:

(i) HIV positive
(ii) Currently taking ARVs,
(iii)Able to provide informed consent
(iv)Had been taking ARVs for at least one year to five years.
(v) Outpatient clients of the ART health facility on the day of recruitment
(vi)Male or female clients on ART aged 18 years and above

3.4.2. SELECTION OF THE ART CLINIC

There are three (2) hospitals in Mwinilunga district that are providing antiretroviral therapy namely Mwinilunga District Hospital, Luwi Mission Hospital and Kalene Mission Hospital. Livingstone has 10 ART centers, Chikankata is one of the three ART sites in Mazabuka and Lusaka has several of them. ART clinics were conveniently selected because they were easily accessed by the researchers as they are only about 200 meters away from where the researcher was residing during the period of the study.

3.4.3. SELECTION OF THE STUDY RESPONDENTS

Study respondents were chosen by simple random sampling which is a probability technique of sampling. Probability sampling involves using random selection procedures to ensure that each unit of the sample is chosen on the basis of chance. All units of the study population should have an equal, or at least a known chance of being included in the sample. (Basavanthappa, 2007).

Simple random sampling is the simplest form of probability sampling. To select a simple random sample the researchers were required to formulate or explore an obtainable numbered list of all the units (sampling frame) in the population from which he/she needs to draw a sample, make a decision on the size of the sample and select the required number of sampling units, using a 'lottery' method or a table of random numbers (Basavanthappa, 2007).

Study respondents were selected by simple random sampling with replacement from the daily appointment list of all adult male and female clients who were on ART for at least one to five years at the beginning of the study period. This was the accessible population. The sampling frame (appointment list) contained the names of all HIV infected adults on HAART receiving ART health care at Lusaka, Livingstone, Chikankata and Mwinilunga ART clinics respectively. The clients were randomly drawn without replacement, comprising of 200 respondents and 50 from each study site.The selected clients were drawn from ART clinics and included in the sample upon obtaining an informed consent form.

3.4.4 INCLUSION CRITERIA

Male and female HIV infected adults (aged 18 years and above) who were on HAART for one to five years receiving ART health services in Lusaka, Livingstone, Chikankata, and Mwinilunga ART clinics and consented to participate in the study were included in the study.

3.4.5 EXCLUSION CRITERIA

HIV infected clients who were excluded from the study included those who had not started ART, who had been on HAART for less than one year or above five years, and who had been on HAART for one year but did not consent to participate in the study.

Pregnant women were disqualified from the study because pregnancy in this study was a confounding variable. A confounding variable is a variable that influences both the dependent and the independent variables giving the impression of an existing relationship between them (Polit and Hungler, 2007). A confounding variable may either make stronger or weaken the evident relationship between the problem and a possible cause. In addition, clients who were too sick to take part in the study were also disqualified.

3.5 SAMPLE SIZE

Sample size is a small part of the population selected in such a way that the individuals in the sample represent as near as possible the characteristics of the population (Polit and Hungler, 2007). A sample size of two hundred (200) HIV infected adults on HAART; fifty from each site attending the ART clinic were used. The selected sample size is the smallest amount requisite for the Bachelor of Science in nursing degree. The sample size of fifty respondents per site was used because there was limited time, financial and inadequate human resources.

3.7 DATA COLLECTION TOOL

A data collection tool is an instrument that is used to measure variables and gather information. It is the formal written document used to collect and record information, such as a questionnaire (Polit and Hungler, 2007). Data for the quantitative part of the study was collected using structured questionnaire with both open and closed questions.

A structured questionnaire schedule is used when questions are asked orally using a face to face approach (Polite and Beck 2006).

The plan of study, interviewing procedures, and methods for maintaining privacy were explained to each probable client. The interviewer read a prepared script that provided a general idea of the study aims the risks and benefits to each client approached for participation. After hearing the script, the clients were asked to voice any questions and whether or not he/she would consent to participate. Clients were asked to sign the informed consent form if they agreed to take part in the study.

Each questionnaire and its matching informed consent form were assigned a three digit identifier. In order to uphold clients' confidentiality, the three digit identifier number, as opposed to the clients' name, was used in further analyze. Once informed consent was obtained, the interviewer proceeded to conduct a structured interview in a private room at the ART health facility. All interviews were conducted using a semi-structured questionnaire. The interviews were conducted in Lusaka, Livingstone, Chikankata and Mwinilunga ART clinics using English or the local languages of respondents in the above study sites within the stipulated time.

3.8. DATA COLLECTION TECHNIQUES

Data collection techniques is the process of gathering needed information to address a research problem (Polit and Hungler, 2007. Data collection techniques permit the researchers to methodically collect information from respondents with reference to the objectives of study.

In this study data, was collected from Lusaka, Livingstone, Chikankata and Mwinilunga through interviews in a face-to-face interaction between the interviewer and the interviewee by using structured interview schedule. To get the wanted information from the respondents, the researchers to begin with began by introducing themselves and obtained consent from the respective health institutions and the health workers on duty. The researchers further asked for a private room where respondents were interviewed from. The interviews were conducted in a private place to offer confidentiality. The researchers introduced themselves to the respondent and explained the reasons and the benefits for conducting the research study.

The researchers also guaranteed the respondents of confidentiality and explained to them that participation was voluntary and were free to withdraw during the interview. Subsequent to all the explanations, the researchers had a consent form signed from the respondent.

Once the consent was obtained, the researchers went on to inquire from the respondent using the structured interview schedule while probing for answers. After the whole interview was complete, the researchers thanked the respondent for their participation. The researchers edited all the responses in the questionnaire at the end of the day and the study period to ascertain completeness.

3.9 VALIDITY AND RELIABILITY

3.9.1 VALIDITY

Validity is the degree to which an instrument measures what it is intended to measure (Polit and Hungler, 2007). Validity constitutes both external and internal validity. Internal validity concerns the extent to which conclusions can be drawn with reference to the effects of one variable on another. It seeks to establish any observed relationship between the dependent variable and independent variable. Internal validity was upheld by avoiding selection bias of respondents by using probability method of selection to make certain randomization; making questions simple, to the point, clearly constructed to avoid uncertainty and short so that the respondents would be uninterested as this would affect their responses. In addition, the researchers avoided interviewing the respondents when they were too exhausted as tiredness would perhaps also negatively affect the test effect. The researchers ensured that the same questions were asked to each respondent in the same order.

External validity is concerned with the amount to which research results will be generalized beyond the sample size of the study. External validity is significant in research as it influences the importance of the study. In this study, external validity was upheld by ensuring that researchers detached themselves from the study by being objective during data collection and analysis so that the study findings would be a factual indication of what the respondents said.

3.9. 2 RELIABILITY

Reliability is the degree of consistency or accuracy with which an instrument measures the attribute it is designed to measure (Polit and Hungler, 2007). It is how well it will produce the same information each time it is used. Reliability was achieved by standardizing the data collecting instrument. Habitual cross checking, inspection and scrutinizing of information on the research data collecting instrument was done to make certain accuracy, relevance, completeness, consistency and uniformity of the data collected. Research instruments were pre tested to enhance reliability of the responses.

3.10 PILOT STUDY

A pilot study is a small-scale dress rehearsal that proceeds as if it were the actual study except for the fact, that subjects who will participate in the actual study are not used (Basavanthappa, 2007). It is a small trial run of the methodology considered for the major project used to detect errors and flaws in the selected tools, that is to find out how reasonable the study will be and how valid and reliable the data collection tools and how possible it will be to analyze the data collected. The researchers conducted a pilot study at UTH medical wards using a sample size of five (5) respondents who were selected by simple random sampling on the day of collecting data for the pilot study. The pilot study was useful in that it helped spot out areas that needed to be revised in the questionnaire.

3.11 ETHICAL CONSIDERATION

Ethics is defined as "a system of moral values that is concerned with the degree to which research procedure adhere to professional, legal and social obligations to the study participants" (Polit and Hungler, 1997). It is necessary that the development and implementation of research should be ethically and culturally suitable. Before conducting the study, the researchers requested for consent from their supervisor to get ethical permission. The completed interview schedules were kept under strict safety to keep away from unauthorized access to the information gathered.

Anonymity and confidentiality were observed during the interview by ensuring that codes were used instead of names and that each respondent were interviewed one by one in a private room.

3.12 OPERATIONAL DEFINITIONS

3.12.1 Client

In this study any person taking ART will be referred to as a client.

3.12.2 Health care Provider

It is any health worker giving care to the people living with HIV and AIDS.

3.12.3 AIDS

AIDS is the disease which results from HIV infection. A chronic manifestation of a number of diseases that result from HIV infection

3.12.4 Community Health Worker

Community Health Workers (CHW) are lay people who have been trained in order to assist the health professionals carry out certain tasks which include voluntary counseling and testing (VCT), ART adherence counseling and referrals for ART or opportunistic infections

3.12.5 Quality of Life

Quality of life means any client who is able to experience positive feelings such as happiness or contentment, satisfied with various aspects of life like sleep, body looks or sex life, having positive feelings about experiences such as discrimination. It also includes clients' abilities in carrying out certain work experiences and activities of daily living such as washing and personal beliefs.

3.12.6 ART Adherence

ART Adherence means a client who has taken ARVs more than 95% of actual days of treatment.

CHAPTER FOUR

4.0 DATA ANALYSIS AND PRESENTATION OF FINDINGS

4.1 DATA ANALYSIS

Data analysis is the systematic organization and synthesis of research data and in quantitative studies, the testing of hypothesis (Polit and Beck, 2008). The main purpose of data analysis is to derive meaning and interpretation from the research findings. In this study, both quantitative and qualitative Data were collected using an interview schedule. The questionnaires were counted and checked for completeness and entered on the SPSS.

4.1.1. Quantitative Data

Quantitative data is defined by Polit and Beck (2008) as information collected in the course of a study that is quantified or numeric form. The quantitative data in this study included the demographic and clinical characteristics variables as well as the quality of life scales and medication adherence scale. Quantitative data were entered on a spread sheet created on SPSS version 16.0. The data were checked for completeness and consistency. The data were coded and the negatively phrased questions were reversed. Frequencies were computed for all items on the questionnaire. Items were added for each domain to produce domain scales. Descriptive statistics were run for all domain scales. The domains were then categorized and frequency tables for each domain were computed. Finally the overall quality of life and adherence scales were computed.

4.1.2 Qualitative Data.

According to Polit and Beck, 2008, qualitative data are information collected in narrative or non numeric form such as the transcript of an unstructured interview. Qualitative data were derived from open ended questions which included suggestions on how HIV status has affected the quality of life of people living with HIV. The responses were written down and read as they were expressed by the respondents in order to derive meaning from the data.

Similar opinions were grouped to lessen the number of opinions obtained from the respondents and were coded for easy analysis. Qualitative data were then categorized and quantified. Finally qualitative data were presented in frequency tables.

4.2 PRESENTATION OF FINDINGS

Presentation of findings involves display of the results of the data collected (Polit and Beck, 2006). The findings of the study are presented using frequency tables (13) and (1) cross tabulations.

Frequency tables give summary of the study results thus ensuring understanding of the findings by the reader. The numbers of tables per section are as follows; section A (3), section B (8), section C (3), section D (1) and section E (0)

4.2.1 SECTION A: DERMOGRAPHIC AND CLINICAL CHARACTERISITCS DATA

This section presents demographic and clinical characteristics data. The demographic variables were age, gender, marital status, residential area, education, occupation, income, primary tribe. The clinical variables were health, HIV serostatus, year first tested, year Infected, how infected, taking ARVs, how long taking ARVs, CD4 count. There are three (3) tables in this section. The first table is a summary of the results on continuous demographic and clinical variables. The second table displays the demographic categorical variables. The last table displays the categorical clinical characteristics variables of the respondents.

TABLE 4.1 Continuous Demographic and Clinical Characteristics Variables (N=200)

VARIABLE	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Age	19	68	40.26	10.59
CD4 count	56	1078	426.84	221.00
Duration of ARVs	**12**	**60**	**38.94**	**16.02**

Age ranged from 19 to 68 (M = 40.26, SD = 10, 59). CD4 count ranged from 56 10 1078 (M = 426.84, SD = 221.00). Duration on ARVS was measured in months and it ranged from 12 to 60 months (M = 38.94, SD = 16.02)

TABLE 4.2 DERMOGRAPHIC DATA – CATEGORICAL VARIABLES

VARIABLE	FREQUENCY	PERCENTAGE
AGE		
Below 31	38	19
31 to 40	72	36
41 to 50	57	28.5
Above 51	43	16.5
Total	**200**	**100**
GENDER		
Male	84	42
Female	116	58
Total	200	100
MARITAL STATUS		
Single	32	16.0
Married	103	51.5
Living as married	2	1.0
Separated	7	3.5

TABLE 4.2 CONTINUES ON NEXT PAGE

TABLE 4.2 CONTINUED

VARIABLE	FREQUENCY	PERCENTAGE
Divorced	20	10.0
Widow	36	18.0
Total	**200**	**100**
RESIDENCE		
Rural	93	46.5
Urban	107	53.5
Total	**200**	**100**
EDUCATION		
Not at all	17	8.5
Primary	85	42.5
Secondary	75	37.5
College	31	15.5
University	11	5.5
Post graduate	1	.5
Total	**200**	**100**

TABLE 4.2 CONTINUES ON NEXT PAGE

TABLE 4.2 CONTINUED

VARIABLE	FREQUENCY	PERCENTAGE
INCOME		
Below K150,000.00	59	29.5
K150,000.0 - K250,000.00	31	15.5
K250,000.00- K500,000.00	37	18.5
Above K500,000.00	73	36.5
Total	**200**	**100**
PRIMARY TRIBE		
Tonga	69	34.5
Lozi	26	13.0
Nyanja	13	6.5
Bemba	20	10.0
Lunda	38	19.0
Kaonde	7	3.5
Luvale	7	3.5
Other	20	10
Total	**200**	**100**

The age category ranging from 31 to 40 had the highest number of respondents (72, 36%). There were more female (116, 58%) than male respondents. More than half of the respondents were married (103, 51.5%), lived in urban residence (107, 3.5%). The education category with the highest number of respondents was primary (85, 42.5%). More than half of the respondents were not employed (107, 53.5%). Slightly over a third of the respondents (73, 36%) had income of above k500, 000. The primary tribe with the highest number of respondents was Tonga (69, 34.5%)

TABLE 4.3

Clinical Characteristics (N=200)

VARIABLE	FREQUENCY	PERCENTAGE
Health		
Very poor	7	3.5
Poor	12	6.0
Neither poor nor good	51	25.5
Good	111	55.5
Very good	19	9.5
TOTAL	**200**	**100**

TABLE 4.2 CONTINUES ON NEXT PAGE

TABLE 4.3 CONTINUED

VARIABLE	FREQUENCY	PERCENTAGE
Currently ill		
Yes	27	13.5
No	173	86.5
Total	**200**	**100**
HIV serostatus		
Asymptomatic	166	83.0
Symptomatic	23	11.5
AIDS converted	11	5.5
TOTAL	**200**	**100**
Year first tested		
2007	56	22.0
2008	61	30.5
2009	25	12.5
2010	33	16.5
2011	29	14.5
TOTAL	**200**	**100**

TABLE 4.2 CONTINUES ON NEXT PAGE

TABLE 4.3 CONTINUED

VARIABLE	FREQUENCY	PERCENTAGE
How infected		
Heterosexual transmission	171	85.5
Injecting drugs	1	.5
Blood products	5	2.5
Other	23	11.5
TOTAL	**200**	**100**
TAKING ARVS		
Yes	200	100

More than half of the respondents' (111, 55.5%) health was good. Although all the respondents were HIV positive, the majority of them (173, 86.5%) stated that they were not currently ill. Most of the respondents (166, 83%) said that they were asymptomatic. On year tested, a third of the respondents (61, 30.5%) were first diagnosed to be HIV positive in 2008. The majority of the respondents (171, 85.5%) were infected heterosexually. All the respondents (200, 100%) were taking ARVs.

4.2.2 SECTION B QUALITY OF LIFE

Quality of life likert scale by WHO was used to assess the QOL. The scale is a five point likert scale with a total of 120 questions and was divided into seven sections: life experience (42), performance of QOL activities (17), satisfaction with various aspects of life (32), feelings about experience (04), work experience (04), mobility (04), and personal beliefs (16).

There are seven tables in this section, each displaying only one section. A composite score of QOL was then obtained by adding all the scores on the QOL scale (Mean = 358.75, Standard Deviation = 28.75). Further quality of life was categorized into positive and negative and the result is presented in a graph after the tables.

TABLE 4.4 QUALITY OF LIFE EXPERIENCE **(N =200)**

VARIABLES	NOT AT ALL	A LITTLE	A MOD. AMT.	VERY MUCH	EXTREME AMT.
	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)
Worry about pain or discomfort	95 (47.5%)	46 (23%)	21 (10.5%)	35 (17%)	3 (1.5)
Difficulty handling pain discomfort	79 (39.5%)	60 (30%)	38 (19%)	19 (9.5%)	4 (2%)
physical pain prevents performance	91 (45.5%)	45 (22.5%)	34 (17.0%)	25 (12.5%)	5 (2.5%)
Easily get tired	75 (37.5%)	60 (30%)	45 (22.5%)	16 (8%)	4 (2%)
Bothered by fatigue	97 (48.5%)	58 (29%)	24 (12%)	18 (9%)	3 (1.5%)
Difficulties with sleeping	127 (63.5%)	40 (20%)	14 (7%)	12 (6%)	7 (3.5%)
Worrying about Sleep problems	132 (66%)	40 (20%)	12 (6%)	12 (6%)	4 (2%)
Bothered by any unpleasant physical problems related to your HIV infection	117 (58.5%)	41 (20.5%)	20 (10%)	20 (10%)	2 (1%)

TABLE 4.4 CONTINUED ON THE NEXT PAGE

TABLE 4.4 CONTINUED

VARIABLES	NOT AT ALL	A LITTLE	A MOD. AMT	VERY MUCH	EXTREME AMT.
	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)
Fear of possible future (physical) pain	106 (53%)	42 (21%)	28 (14%)	16 (8%)	8 (4%)
Bothered by fears of developing physical problems	93 (46.5%)	40 (20%)	30 (15%)	30 (15%)	7 (3.5%)
Experience positive feelings in your life	19 (9.5%)	13 (6.5%)	45 (22.5%)	100 (50.0%)	23 (11.5%)
Enjoying life	7 (3.5%)	10 (5%)	54 (27%)	105 (52.5%)	24 (12%)
Positive feelings about the future	7 (3.5%)	10 (5%)	44(22%)	103 (51.5%)	36 (18%)
Ability to concentrate	5 (2.5%)	4 (2%)	36 (18%)	106 (53%)	49 (24.5%)
Value of yourself	27 (13.5%)	11 (5.5%)	23 (11.5%)	92 (46%)	47 (23.5%)
Confidence in self	11 (5.5%)	4 (2%)	22 (11%)	116 (58%)	47 (23.5%)
eelings inhibited by your looks	100 (50%)	25 (12.5%)	23 (11.5%)	35 (17.5%)	17 (8.5%)
art of your appearance which akes you feel uncomfortable	121 (60.5%)	9 (14.5%)	23 (11.5%)	21 (10.5%)	6 (3%)

TABLE 4.4 CONTINUED ON THE NEXT PAGE

TABLE 4.4 CONTINUED

VARIABLES	NOT AT ALL	A LITTLE	A MOD. AMT	VERY MUCH	EXTREME AMT.
	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)
Feelings of worry	96 (48%)	56 (28%)	32 (16%)	11 (5.5%)	5 (2.5%
Feelings of sadness or depression interfering with your everyday functioning	103 (51.5%)	47 (23.5%)	28 (14%)	16 (8%)	6 (3%)
Bother by feelings of depression	92 (46%)	56 (28%)	25(12.5%)	15 (7.5%)	12(6%)
Difficulty in performing routine activities	78 (39%)	44 (22%)	30 (15%)	25 (12.5%)	23(11.5%)
Bothered by limitations in performing everyday activities	78 (39%)	44 (22%)	30 (15%)	25 (12.5%)	23 (11.5%)
Need for any medication to function in daily life	31 (15.5%)	21 (10.5%)	26 (13%)	63 (31.5%)	59 (29.5%)
Need for medical treatment to function in daily life	21 (10.5%)	23(11.5%)	24(12%)	65 (32.5%)	67 (33.5%)
Extent of QoL depending on use of medical substances or medical aids	37 (18.5%)	20 (10%)	34 (17%)	55 (27.5%)	54 (27%)
Feelings of being alone in life	61 (30.5%)	56 (28%)	35 (17.5%)	36 (18%)	12 (6%)
Fulfillment of sexual needs	63 (31.5%)	40(20.0%)	38 (19.0%)	47 (23.3%)	12 (6%)
Bothered by any difficulties in sex life	64 (32%)	51(25.5%)	26 (13%)	42 (21%)	17 (8.5%)

TABLE 4.4 CONTINUES ON NEXT PAGE

TABLE 4.4 CONTINUED

VARIABLES	NOT AT ALL	A LITTLE	A MOD. AMT	VERY MUCH	EXTREME AMT.
	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)
Feelings of safety in daily life	21 (10.5%)	34 (17%)	30 (15%)	96 (48%)	19 (9.5%)
Feelings of living in a safe and secure environment	34 (17%)	29 14.5%)	32 (16%)	80 (40%)	25 (12.5%)
Worrying about safety and security	41 (20.5%)	31 15.5%)	37 (18.5%)	71 (35.5%)	20 (10%)
Comfortability of place where you live	23 (11.5%)	22 (11%)	42 (21%)	88 (44%)	25 12.5%)
Liking place of residence	12 (6.0%)	36 18.0%)	47 (23.5%)	81 (40.5%)	24 12.0%)
Having financial difficulties	22 (11.0%)	35 17.5%)	67 (33.5%)	61 (30.5%)	15 (7.5%)
Worry about money	15 (7.5%)	32 16.0%)	64 (32.0%)	69 (34.5%)	20(10.0%)
Easy ability to get good medical care	15 (7.5%)	25 12.5%)	49 (24.5%)	92 (46.0%)	19 (9.5%)
Enjoy free time	18 (9%)	25 12.5%)	46 (23.0%)	89 (44.5%)	22 (11%)
Healthy of physical environment	46 (23%)	26 (13%)	43 (21.5%)	61 (30.5%)	24 (12%)
Concern with the noise at place of residence	54 (27%)	33 (16.5%)	42 (21%)	48 (24.0%)	23 (11.5%)
Extent of problems with transport	60 (30%)	43 (21.5%)	35 (17.5%)	43 (21.5%)	19 (9.5%)
Difficulties with transport restricting your life	42 (21%)	33 (16.5%)	42 (21%)	53 (26.5%)	30 (15%)

About half of the respondents (95, 47.4%) did not worry about pain or discomfort. A third of the respondents (79, 39.5%) had no difficulty in handling pain or discomfort and (91, 45.5%) did not have physical pain preventing their performance.

Almost half of the respondents (97, 48.5%) were not bothered by fatigue. And above half of the respondents (132, 66%) were not worried about sleep problems. Slightly above half of the respondents (117, 58.5%) were not bothered by any unpleasant physical problems related their HIV infection.

Slightly below half of the respondents (93, 46.5%) were not bothered by fears of developing any physical problem. Half of the respondents (100, 50.0%) experienced positive feelings in their life. Furthermore half of the respondents (106, 53%) had ability to concentrate.

Slightly above half of the respondents (116, (58%) felt confident in themselves. Half of the respondents (100, 50%) felt inhibited by their looks. Half of the respondents (103, 51.5%) had no feelings of sadness or depression interfering with their everyday functioning. About 78, 39% of the respondents had difficulty in performing their routine activities.

Of all the respondents about 39% (78) were not bothered by any limitations in performing everyday living activities. Almost a third of the respondents (67, 33.5%) needed treatment to function in daily life. A third of the respondents (61, 30.5%) had no feelings of being alone in life. Another third (63, 31.5%) have their sexual needs not fulfilled and 32% (64) were bothered by difficulties in their sex life.

About 40% of the respondents (80) felt safe and secure in the environment where they lived. Close to a third of the respondents (6,130.5%) had moderate financial difficulties. Close to half of the respondents (92, and also the relationship between 46%) were able to get good medical care. 44.5% of the respondents (89) enjoyed their free time.

Only 30.5% of the respondents (61) lived in a healthy physical environment. Of the respondents only 27% (54) were concerned with the noise at their place of residence. About26.5% (53,) had difficulties with transport restricting your life.

TABLE 4.5 PERFORMANCES OF QoL ACTIVITIES (N=200)

Variable	Not at all	A little	A mod. amt	Very much	Ext. amt.
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Have enough energy for everyday life	44 (22.0%)	27 (13.5%)	37 (18.5%)	58 (29%)	34 (17%)
Extent of unpleasant physical problems preventing you from doing important things	35(17.5%)	29 (14.5%)	36 (18%)	62 (13%)	38 (19%)
Ability to accept bodily appearance	20 (10%)	25(12.5%)	34 (17%)	66 (33%)	55 (27.5%)
Extent of ability to carry out daily activities	8 (4%)	15 (7.7%)	37 (18.5%)	85 (42.5%)	55 (27.5%)
Dependence on medications	24 (12%)	23 (11.5%)	31 (15.5%)	68 (34%)	54 (27%)
Getting the kind of support needed from others.	24 (12%)	33 (16.5%)	46 (23%)	65 (32%)	32 (16%)
Extent of counting on friends when needed.	25 (12.5%)	39 (19.5%)	39 (19.5%)	68 (34%)	29 (14.5%)
Extent of feeling accepted by known people.	17 (8.5%)	21 (10.5%)	45 (22.5%)	65 (32.5%)	52 (28%)

TABLE 4.5 CONTINUED ON THE NEXT PAGE

TABLE 4.5 CONTINUED

Variable	Not at all	A little	A mod. amt	Very much	Ext. amt.
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Extent of being accepted by community?	28 (14%)	29 (14.5%)	34 (17%)	73 (36.5)	36 (18.0)
Feel of being alienated from those around you	38 (19%)	27 (13.5%)	55 (27.5%)	56 (28.0)	24 (12.0)
Degree of home meeting your needs	18 19%)	26 (13%)	67 (33.5%)	71 (35.5%)	18 (9%)
Have enough money to meet needs	13 (6.5%)	27 (13.5%)	86 (43%)	60 (30%)	14 (7%)
Availability of information needed in day-to-day life	3 (1.5%)	40 (20%)	63 (31.5%)	77 (38.5%)	17 (8.5%)
Extent of having opportunities for acquiring information needed	7 (3.5%)	35 (17.5%)	55 (27.5%)	87 (43.5%)	16 (8%)
Extent of having opportunity for leisure activities	12 (6%)	21 (10.5%)	53 (26.5%)	95 (47.5%)	19 (9.5%)
Availability to relax and enjoy self	9 (4.5%)	19 (9.5%)	61 (30.5%)	86 (43%)	25 (12.5%)

TABLE 4.5 CONTINUED ON THE NEXT PAGE

TABLE 4.5 CONTINUED

Variable	Not at all	A little	A mod. amt	Very much	Ext. am
	Freq (%)	Freq (%)	Freq (%)	Freq (%)	Freq (%)
Extent of having adequate means of transport.	4 (2%)	34 (17%)	47 (23.5%)	83 (41.5%)	32 (16%
Have enough money to meet needs	13 (6.5%)	27 (13.5%)	86 (43%)	60 (30%)	14 (7%)
Availability of information needed in day-to-day life	3 (1.5%)	40 (20%)	63 (31.5%)	77 (38.5%)	17 (8.5%
Extent of having opportunities for acquiring information needed	7 (3.5%)	35 (17.5%)	55 (27.5%)	87 (43.5%)	16 (8%)
Extent of having opportunity for leisure activities	12 (6%)	21 (10.5%)	53 (26.5%)	95 (47.5%)	19 (9.5%
Availability to relax and enjoy self	9 (4.5%)	19 (9.5%)	61 (30.5%)	86 (43%)	25 (12.5%
Extent of having adequate means of transport.	4 (2%)	34 (17%)	47 (23.5%)	83 (41.5%)	32 (16%)

Almost a third (58,29%) of the respondents had enough energy for everyday life, only 38,19% had extreme unpleasant physical problems preventing them from doing important things and third (66,33%) were able to accept their bodily appearance. (85, 42.5%) of the respondents were able to carry out their daily activities, slightly more than a third (68, 34%) were dependant on medication.

TABLE 4.5 CONTINUED

Variable	Not at all Freq (%)	A little Freq (%)	A mod. amt Freq (%)	Very much Freq (%)	Ext. amt. Freq (%)
Extent of having adequate means of transport.	4 (2%)	34 (17%)	47 (23.5%)	83 (41.5%)	32 (16%)
Have enough money to meet needs	13 (6.5%)	27 (13.5%)	86 (43%)	60 (30%)	14 (7%)
Availability of information needed in day-to-day life	3 (1.5%)	40 (20%)	63 (31.5%)	77 (38.5%)	17 (8.5%)
Extent of having opportunities for acquiring information needed	7 (3.5%)	35 (17.5%)	55 (27.5%)	87 (43.5%)	16 (8%)
Extent of having opportunity for leisure activities	12 (6%)	21 (10.5%)	53 (26.5%)	95 (47.5%)	19 (9.5%)
Availability to relax and enjoy self	9 (4.5%)	19 (9.5%)	61 (30.5%)	86 (43%)	25 (12.5%)
Extent of having adequate means of transport.	4 (2%)	34 (17%)	47 (23.5%)	83 (41.5%)	32 (16%)

Almost a third (58,29%) of the respondents had enough energy for everyday life, only 38,19% had extreme unpleasant physical problems preventing them from doing important things and third (66,33%) were able to accept their bodily appearance. (85, 42.5%) of the respondents were able to carry out their daily activities, slightly more than a third (68, 34%) were dependant on medication.

Almost a quarter (46,23%) of the respondents were able to get the kind of support needed from others, 32.5% (65) felt accepted by known people while 28% (56) felt alienated from those around them. Below average (86,43%) of the respondents had enough money to meet their needs, 38.5% (77) had information needed for day to day life. Almost a quarter (95,47.5%) of the respondents, had opportunities for leisure activities and 43% (86) were able to relax and enjoy themselves. 41.5% (83) of the respondents had adequate means of transport.

TABLE 4.6.SATISFACTION WITH VARIOUS ASPECTS OF LIFE (N =200)

VARIABLE	**Very dissatisfied**	**dissatisfied**	**Neither satisfied nor dissatisfied**	**satisfied**	**Very satisfied**
	Freq %	**Freq %**	**Freq %**	**Freq %**	**Freq %**
Satisfaction with the quality of life	8 (4%)	17 (8.5%)	45 (22.5%)	95 (47.5%)	35 (17.5%)
General with life satisfaction	2 (1%)	14 (7%)	43 (21.5%)	103 (51.5%)	38 (19%)
Satisfaction with health	1 (.5%)	15 (7.5%)	38 (19%)	100 (50%)	46 (23%)
Satisfaction with the body energy	1 (.5%)	10 (5%)	45 (22.5%)	90 (45%)	54 (27%)
Satisfaction with sleep	2 (1%)	16 (8%)	40 (20%)	89 (44.5%)	53 (26.5%)

TABLE 4.6 CONTINUED ON THE NEXT PAGE

TABLE 4.6 CONTINUED

VARIABLE	Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
	Freq %	Freq %	Freq %	Freq %	Freq %
Satisfaction with ability to learn new information	2 (1%)	16 (8%)	38 (19%)	90 (45%)	54 (27%)
Satisfaction with ability to make decisions	3 (1.5%)	9 (4.5%)	33 (16.5%)	103 (51.5%)	52 (26%)
Satisfaction with yourself	3 (1.5%)	8 (4%)	31 (15.5)	105 (52.5%)	53 (26.5%)
Satisfaction with your abilities	7 (3.5%)	14 (7%)	30 (15%)	89 (44.5%)	60 (30%)
Satisfaction with body looks	5 (2.5%)	16 (8%)	41 (20.5%)	83 (41.5%)	55 (27.5%)
Satisfaction with ability to perform daily living activities	6 (3%)	19 (9.5%)	45 (22.5%)	92 (46.5%)	38 (19%)
Satisfaction a with personal relationships	2 (1%)	18 (9%)	57 (28.5%)	93 (46.5%)	30 (15%)
Satisfaction are with sex life	10 (5%)	29 (14.5%)	56 (28.5%)	74 (37%)	31 (15.5%)
Satisfaction with support from the family	9 (4.5%)	36 (18%)	48 (24%)	87 (43.5%)	20 (10%)

TABLE 4.6 CONTINUED ON THE NEXT PAGE

TABLE 4.6 CONTINUED

VARIABLE	Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
	Freq %	Freq %	Freq %	Freq %	Freq %
Satisfaction with support from friends	11 (5.5%)	25 (12.5%)	56 (28%)	91 (45%)	17 (8.5%)
Satisfaction with ability to provide	9 (4.5%)	23 (11.5%)	50 (25%)	91 (45.5%)	27 (13.5%)
Satisfaction with physical safety and security	5 (2.5%)	25 (12.5%)	55 (27.5%)	95 (47.5%)	20 (10%)
Satisfaction with the living place conditions	6 (3%)	26 (13%)	57 (28.5%)	88 (44%)	23 (11.5%)
Satisfaction a with financial situation	8 (1.5%)	29 (14.5)%	54 (27%)	84 (42%)	25 (12.5%)
Satisfaction with access to health services	3 (1.5%)	26 (13%)	60 (30%)	85 (42.5%)	26 (13%)
Satisfaction with social care services	6 (3%)	32 (16%)	59 (29.5%)	81 (40.5%)	22 (11%)
Satisfaction with opportunities for acquiring new skills	4 (2%)	31 (15.5%)	55 (27.5%)	87 (43.5%)	23 (11.5%)
Satisfaction with opportunities to learn new information	3 (1.5%)	21 (12.5%)	56 (28%)	86 (43%)	34 (17%)

TABLE 4.6 CONTINUED ON THE NEXT PAGE

TABLE 4.6 CONTINUED

VARIABLE	Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
	Freq %	Freq %	Freq %	Freq %	Freq %
Satisfaction with spare time	6 (3%)	25 (12.5%)	41 (20.5%)	93 (46.5%)	35 (17.5%)
Satisfaction with physical environment	9 (4.5%)	22 (11%)	47 (23.5%)	89 (44.5%)	33 (16%)
satisfaction with place where of residence	9 (4.5%)	19 (9.5%)	42 (21%)	90 (45%)	40 (20%)
Satisfaction with transport	8 (4 %)	20 (10%)	50 (25%)	74 (37%)	48 (24%)
Feeling happy about relationship with family	3(1.5%)	14(7%)	51(25.5%)	74(37%)	58(29%)
Rating the quality of life	9 (4.5%)	17 (8.5%)	39 (19.5%)	95 (47.5%)	40 (20%)
Rating of sex	14 7.0%)	27(13.5%)	45 (22.5%)	64 (32.0%)	50 25.0%)
Sleeping well	15 7.5%)	24 (12%)	48 (24%)	67 (33.5%)	46 (23%)
Rating of memory	20 (10%)	27 (13.5%)	39 (19.5%)	69 (34.5%)	45 22.5%)
Rating availability of quality social services	2311.5%)	45 (22.5%)	40 (20%)	60 (30%)	32 (16%)

Almost half of the respondents (95, 47.5%) were satisfied with the quality of life and half of the respondents (100, 50%) were satisfied with their health. About (90, 45%) of the respondents were satisfied with their body energy and (89, 44.5%), of the respondents were satisfied with their sleep.

Slightly below half (90, 45%) were satisfied with the ability to learn new information and more than half (103, 51.5%) of the respondents were satisfied with the ability to make decisions

About (83, 41.5%) were satisfied with their body looks and less than half (92, 46.5%) of the respondents were satisfied with the ability to perform daily living activities.

Below half of the respondents (93, 46.5%) satisfied with their personal relationships and less than half (74, 37%) of the respondents were satisfied with their sex life. About 87 (43.5%) of the respondents were satisfied with support from the families and 91, (45%) were satisfied with support from their friends. Slightly below (95, 47.5%) of the respondents were satisfied with their physical safety and security and 88 (44%) of the respondents were satisfied with the living place conditions. About 84 (42%) of the respondents were satisfied with their financial situation and 85, (42.5%) of the respondents were satisfied with access to health services.

About 86 (43%) of the respondents were satisfied with opportunities to learn new information

Below half (89, 44.5%) of the respondents were satisfied with physical environment

e.g. pollution, climate, noise, attractiveness. Less than half (74, 37%) of the respondents were satisfied with transport and (74, 37%) of the respondents felt happy for their relationship with family members (64, 32%) of the respondents were satisfied how well they slept and (69, 34.5%) of the respondents were satisfied with their rate of memory.

One third (60, 30%) of the respondents were satisfied with the availability of quality of social services.

TABLE 4.7 FEELINGS ABOUT EXPERIENCE **(N =200)**

VARIABLE	NEVER	SELDOM	QUITE OFTEN	VERY OFTEN	ALWAYS
	FREQ %	FREQ %	FREQ %	FREQ %	FREQ %
Suffering (physical) pain	24 (12%)	53 (26.5%)	45 (22.5%)	56 (28%)	22 (11%)
Generally feel content	38 (19%)	47 (23.5%)	36 (18%)	54 (27%)	25 (12.5%)
Negative feelings, such as blue mood, despair, anxiety, depression.	48 (23%)	51 (25.5%)	29 (14.5%)	46 (23%)	26 (13%)
Feel discriminated against because of health condition	51 (25.5%)	31 (15.5%)	39 (19.5%)	51 (25.5%)	28 (14%)

Twenty eight percent (28%) of the respondents suffer (physical) pain. And about 27% generally feel content about themselves. Close to a quarter of the respondents (48, 23%) experienced negative feelings, such as blue mood, despair, anxiety, depression. A quarter (51, 25.5%) felt discriminated against because of their health condition.

TABLE 4.8 WORK EXPERIENCE

(N=200)

VARIABLE	NOT AT ALL	A LITTLE	MODERATE	MOSTLY	COMPLETELY
	FREQ %	FREQ %	FREQ %	FREQ %	FREQ %
Ability to work	28 (14.0%)	29 (14.5%)	30 (15.0%)	73(36.5%)	40(20.0%)
Ability to carry out duties	24 (12.0%)	15 (7.5%)	41 (20.5%)	73 (36.5%)	47 (23.5%)
Satisfied with capacity for work	23 (11.5%)	12 (6.0%)	40 (20.0%)	79 (39.5%)	46 (23.0%)
Rate the ability to work	13 (6.5%)	17 (8.5%)	36 (18.0%)	91 (45.5%)	43 (21.5%)

Slightly above a third of the respondents (73, 36.5%) were able to do their work and about 79, (39.5%) were satisfied with their capacity to work of which 45.5% of the respondents rated as being good.

TABLE 4.9 PERSONAL BELIEFS **(N=200)**

Variable	NOT AT ALL	A LITTLE	A MOD. AMT	VERY MUCH	EXT. AMT.
	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)	FREQ (%)
Personal beliefs giving meaning to life	31 (15.5%)	16 (8%)	46 (23%)	78 (29%)	29 (14.5%)
Extent of life being meaningful	29 (14%)	21 (10.5%)	40 (20%)	79 (39.5%)	31 (15.5%)
Extent of personal beliefs giving strength to face difficulties	42 (21%)	20 (10%)	40 (20%)	70 (35%)	28 (14%)
Extent of personal beliefs helping to understand difficulties in life	54 (27%)	24 (12%)	39 (19.5%)	56 (28%)	27 (13.5%)
Extent of being bothered by people blaming for HIV status?	88 (44%)	28 (14%)	38 (19%)	33 (16.5%)	13%(6.5)
Guilty feelings about being HIV positive?	87 (43.5%)	30 (15%)	36 (18%)	34 (17%)	13 (6.5%)

TABLE 4.9 CONTINUED ON THE NEXT PAGE

TABLE 4.9 CONTINUED

VARIABLE	Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
	Freq %	Freq %	Freq %	Freq %	Freq %
Extent of feeling guilty when needing help and care of others	84 (42%)	45 (22.5%)	37 (18.5%)	25 (12.5%)	9 (4.5%)
Extent of being concerned about HIV status breaking family line and future generations.	77 (38.5%)	47 (23.5%)	40 (20%)	26 (13%)	10 (5%)
Extent of being concerned about people remembering you when dead	84 (42%)	43 (21.5%)	36 (18%)	25 (12.5%)	12 (6%)
Extent of being bothered by suffering from fate or destiny	93 (46.5%)	40 (20%)	38 (19.5%)	24 (12%)	5 (2.5%)
Fear for the future	88 (44%)	48 (24%)	38 (19.5%)	19 (9.5)	7 (3.5%)
worrying about death	95 (47.5%)	54 (27%)	30 (15%)	12 (6%)	9(4.5%)

TABLE 4.9 CONTINUED ON THE NEXT PAGE

TABLE 4.9 CONTINUED

VARIABLE	Very dissatisfied	dissatisfied	Neither satisfied nor dissatisfied	satisfied	Very satisfied
	Freq %	Freq %	Freq %	Freq %	Freq %
Bothered about thoughts of not dying the preferred way	100 (50%)	42 (21%)	34 (17%)	21 (10.5%)	3 (1.5%)
Concerned about how and where will die	92 (48%)	48 (24%)	48 (24%)	10 (5%)	2 (1%)
Preoccupied about suffering before dying	102 (51%)	46 (23%)	37 (18.5%)	11 (5.5%)	4 (2%)
Blame self for HIV infection	98 (49%)	33 (16.5%)	47 (23.5%)	17 (8.5%)	5 (2.5%)

Personal beliefs gave meaning to life in 29% (78) of the respondents, 39.5% (78) found life to be meaningful, 28% (56) of the respondents were helped by their personal beliefs to understand difficulties in life. 43.5% (87) of the respondents did not feel guilty about being HIV positive, 38.5% (77) were not at all concerned about their HIV status breaking family line and future generations.46.5% (93) of the respondents were not bothered by suffering from fate or destiny, 47.5% (95) did not worry about death, 48% (92) were not concerned about how and where they would die from, 51% (102) were not preoccupied about suffering before dying and 49 % (98) did not blame themselves for HIV infection.

QUALITY OF LIFE

The total score of QoL elements was obtained after multiplying one hundred and twenty (120) QoL questions from the questionnaire with 5 (highest score rate). This gave us a total QoL score of six hundred (600). This was further classified into 2 categories; poor QoL (0- 299) or good QoL (300 – 600).

TABLE 5. QUALITY OF LIFE (N=200)

VARIABLE	FREQUENCY	PERCENTAGE
Poor	4	2
Good	196	98
TOTAL	**200**	**100**

CATEGORISED ADHERENCE (N=200)

Categorized QoL	Categorized Adherence at 95% Actual days of treatment		Total
	poor	Good	
Poor	0	4	4
Good	4	192	196
Total	**4**	**196**	**200**

The findings did not show a direct relationship between QoL and ART adherence.

The respondents with poor QoL had good adherence, good QoL had poor adherence showing no relationship between the two because there is no variability in the data. Cross tabulation between ART adherences, demographic and clinical characteristic were not done due to lack of variability.

4.2.3 SECTION C ART ADHERENCE

This section presents information on ART adherence. There are three tables in this section; the first table shows; date of commencement of ARVs, actual number of days of treatment and adherence, the second table has information on categorized adherence data and another on adherence categorized ranges. This study focused on 90 days ART treatment schedule for all the respondents (200). From the total number of treatment days of 90 days, adherence was categorized into poor or good. The respondents were classified as having had poor adherence if they took their medication for 85.5 days from the 90 days and good for those who took for more than 85.5 days.

TABLE 6. DATE OF COMMENCEMENT of ARVs (N =200)

YEAR	FREQUENCY	PERCENTAGE
2006	1	.5
2007	37	18.5
2008	55	27.5
2009	33	16.5
2010	40	20.0
2011	33	16.5
2012	1	.5
Total	**200**	**100**

Close to a third of the respondents (55, 27.5) were commenced on ARVs in 2008.

TABLE 7.0 ADHERENCE (N =200)

LEVEL OF ADHERENCE	FREQUENCY	PERCENTAGE
Poor	4	2
Good	196	98
TOTAL	**200**	**100**

The majority of the respondents (196, 98%) adhered to their antiretroviral therapy.

TABLE 7.1 ADHERENCE N=200

VARIABLE	MINIMUM	MAXIMUM	MEAN	STANDARD DEVIATION
Cat adherence	**1**	**2**	**1.98**	**.140**

The categorized adherence ranged from 1 to 2 (M = 1.98, SD = .140).

4.2.4 SECTION D

RELATIONSHIP BETWEEN ADHERENCE TO ART MEDICATIONS AND QOL

This section shows the relationship between adherence to ART medications and QoL among people living with HIV and AIDS.

TABLE 8 ADHERENCE AND QoL **N=200**

Categorised QoL	Categorised Adherence at 95% Actual days of treatment		Total
	poor	Good	
Below 201	0	1	1
201 - 400	4	178	182
Above 401	0	17	17
Total	**4**	**196**	**200**

The findings in table did not show any meaningful inferences drawn. The table is merely presented to enable the discussion on the hypothesis. No significant statistical evidence for the relationship between QoL and ART adherence has come out. The findings in the data ended up not testing the hypothesis.

4.2.5 SECTION E

This section presents the responses given by the respondents on how their HIV status has affected their lives.

TABLE 9

RESPONSES ON HOW HIV STATUS HAS AFFECTED THE RESPONDENTS LIFE

N = 200

Participants response	**Frequency**	**percentage**
Not at all affected by their HIV status.	115	57.5
Worried about living with the HIV virus for the rest of their lives	49	24.5
Having HIV infection restricting their ability to work or do normal activities	9	4.5
Had children and spouses who died due to the HIV infection.	6	3
Unable to continue with their education because of being sick	3	1.5
Divorced because of their HIV status	2	1
Low self esteem	2	1
Bothered by being on ARV medication for the rest of their life.	10	5
Did not give any response.	4	2
Total	**200**	**100**

More than half of the respondents (57.4%) were not at all affected by their HIV status.

CHAPTER FIVE

5.0 DISCUSSION OF FINDINGS

5.1 INTRODUCTION

The general objective of the study was to determine the relationship between ART adherence and quality of life among the people living with HIV/AIDS in Zambia. The results were based on the analysis of the responses from two hundred (200) respondents sampled from ART clinics in the following districts Lusaka, Livingstone, Chikankata and Mwinilunga. This chapter discusses the research findings.

5.2 DERMOGRAPHIC AND CLINICAL CHARACTERISITCS DATA

Section A of the questionnaire elicited information on the demographic characteristics of the respondents. The demographic and clinical characteristics of the respondents which were relevant to this study were age, gender, marital status, residential area, education, occupation, income, primary tribe. The clinical variables were health, HIV serostatus, year first tested, year infected, how infected, taking ARVs, how long taking ARVs, and CD4 count.

The findings of the study showed that age ranged from 19 to 68 (M = 40.26, SD = 10, 59). According table 4:2:1, this age range is attributed to the following two reasons. Firstly, the study recommended the respondents to above 18 years of age. Secondly; this age group represents the range for the sexually active population. The age category ranged from 31 to 40 had the highest number of respondents (72, 36%) and this corresponds with UNICEF, 2009 statement which said that the prevalence percentage of HIV rates among the population ages 15 to 49.

CD4 count ranged from 56 to 1078 (M = 426.84, SD = 221.00). Table 4:2:1 shows that the mean for CD4 count was 426.84 which are above the recommended CD4 count for ART eligibility (350). This correlates with UNAIDS/WHO, 2006 which states that when the patient's CD-4 count reaches 350 cells/mm^3 or lower and their condition is life-threatening, it is recommended that they are commenced ART.

This study reviewed that the respondents had been on ARVs for more than a year at the time of the study and they were showing steady improvement. Duration on ARVS was measured in months and it ranged from 12 to 60 months (M = 38.94, SD = 16.02). The mean duration (38.94) indicates that there was improvement in terms of CD4 count because the respondents had taken treatment for more than three year.

Table 4.2 indicated that there were more female (116, 58%) than male respondents in this study. These findings are in line with Zambia UNGASS Report, 2012; "For every two people on treatment, five more are newly infected, of whom three are women National tracking of progress on MDG 6 has shown that Zambia has actually met the MDG target on prevalence (< 15. 6 % by 2015), which stands at 14.3 %; prevalence is higher for women (16 %) than men (12 %)".In terms of HIV transmission, women are more vulnerable because of their biological make up, inability to negotiate for safer sex, cultural and traditional beliefs such as tattooing of the body as stated by UNGASS, 2012.

More than half of the respondents were married (103, 51.5%), lived in urban residence (107, 53.5%). The study was done in Lusaka and Livingstone among others is among the highest in towns with HIV prevalence rate in Zambia. This finding was supported Zambia UNGASS Report, 2012 which states that urban adult HIV prevalence (19.7%) is nearly twice as high as in rural areas (10.3%). The large Zambian cities of Kitwe, Livingstone, Ndola and Lusaka constitute more than half of the entire HIV & AIDS epidemic in Zambia.

The education category with the highest number of respondents was primary (85, 42.5**%).** More than half of the respondents were not employed (107, 53.5%).This is in line with the ZDHS report 2010, which states that rural and urban Zambia has 80% and 70% unemployment levels respectively. Slightly over a third of the respondents (73, 36%) had income of above k500, 000. This is due to the fact that most respondents were not formally employed.

The primary tribe with the highest number of respondents was Tonga (69, 34.5%). This is because of the fact that two of the study sites (Chikankata and Livingstone) were in Southern Province, where the prominent tribe is Tonga whose culture promotes polygamous marriages.

In a Polygamous marriage, when one partner is infected with HIV the chance of other partners being infected is high.

Table 4.3 contains clinical characteristics which are; health, currently ill, HIV serostatus, year first tested and taking ARVs. The study showed that more than half of the respondents (111, 55.5%) had good health, majority were not currently ill (173, 86.5%) and more of the respondents were asymptomatic (166, 83%). This indicates that most of the respondents were actually responding well to ARVs as also mentioned by Liu et al, 2007 "The use of highly active antiretroviral therapy (HAART) is reported to have a significant impact on the quality of life of PLWHA".

On year tested, a third of the respondents (61, 30.5%) were first diagnosed to be HIV positive in 2008. This is because the study was confined to the respondents who had been on ARVs for one to five years. The majority of the respondents (171, 85.5%) were infected heterosexually. This indicates that most of the respondents contracted HIV through heterosexual with a percentage of 85.5% because that is the commonest way of practicing sexual relations. This is higher than the UNGASS, 2012 study which states that the epidemiological synthesis of the epidemic, estimated that most of the new infections among adults were in individuals whose partners had casual heterosexual sex 37%, followed by individuals reporting casual heterosexual sex 34%, those reporting low risk heterosexual sex, that is, mutual monogamy 21%.

All the respondents (200, 100%) were taking ART treatment. This is because one of the eligibility criteria to the study was that the respondents must have been on ART treatment for one to five years.

5.3 SECTION B QUALITY OF LIFE

This section focused on quality of life which was subdivided into the following; Quality of life experience, performance of QoL activities, satisfaction with various aspects of life, feelings about experience, work experience, mobility, and personal beliefs. (Appendix 7).

WHOQOL-HIV Likert scale tool was employed in measuring QoL among people living with HIV and AIDS. Using this measure, the researchers found that;

Sixty six percent (66%) of the respondents were not worried about sleep problems. This is attributed to the fact that most of the respondents enjoyed good health despite being HIV positive, only twenty eight percent (28%) of the respondents suffered physical pain. And almost a quarter (47.5%) of the respondents had opportunities for leisure activities which could be as a result of not experiencing many clinical symptoms. 51.5% of the respondents were satisfied with the ability to make decisions; 39.5% were satisfied with their capacity to work. 51% were not preoccupied about suffering before dying and 42.5% of the respondents were satisfied with access to health services.

These findings could be attributed to the remarkable efforts of the government of Zambia towards universal access to HIV and AIDS care and treatment over a decade. Zambia introduced free anti-retroviral therapy (ART) to strengthen the health care system and improve the quality of HIV services as reported by NAC, 2009. By the end of 2009, 68% of the 330,000 HIV clients who needed ARVs were receiving the treatment and a third of all health facilities in the country were able to offer treatment (NAC, 2009). Adedimeji and Odutolu, 2005 also indicated that individuals who have access to health care, social support and ARV therapy will experience better QoL than those who do not have the access. The other reason could be the availability of free-of-charge ART services which encourage clients to seek health care services earlier and improve their compliance with treatment.

The study has revealed that the quality of life among people living with HIV and AIDS in almost all the respondents was good as a result of many factors which include adherence to ART medications, government policies of free ART treatment and the efforts of the hard working health care providers.

5.4 SECTION C ART ADHERENCE

This study focused on 90 days ART treatment schedule for all the respondents (200). From the total number of treatment days of 90 days, adherence was categorized into poor or good. The respondents were classified as having had poor adherence if they took their medication for 85.5 days from the 90 days and good for those who took for more than 85.5 days.

Close to a third of the respondents (55, 27.5) were commenced on ARVs in 2008. The majority of the respondents (196, 98%) adhered to their antiretroviral therapy. This means that they took their medicines for more than 85.5 days (above 95% adherence). We may attribute to the comprehensive and continuous adherence counseling given at every visit, the consistent and free supply of ARVs and other health services, the voluntary service of treatment supporters and the commitment of professional health personnel.

5.5 SECTION D RELATIONSHIP BETWEEN ADHERENCE TO ART MEDICATION AND QOL

The assessment of QOL as a measure of treatment outcomes has become popular in Medicine because the concept of QOL itself captures exactly the notion that the ultimate goal of medical intervention is to improve the well-being of the patient (Olusina and Ohaeri, 2007).

The findings in this study did not statistically show a direct relationship between QoL and ART adherence. The respondents with poor QoL had good adherence, good QoL had poor adherence showing no relationship between the two because there is no variability in the data. The findings in the data ended up not testing the hypothesis.

5.6 IMPLICATIONS TO THE HEALTH CARE SYSTEM

5.6.1 Nursing practice

Nursing practice is a direct service provided to a variety of patient/client population throughout the life cycle as well as groups and communities (Parker, 2010)

This study shows that nurses play a vital role in the management of HIV and AIDS clients like prescribing and dispensing of ART medications, offering counseling, monitoring and evaluating adherence to ART medication and offering general nursing care. Therefore there is need to increase the practicing scope of nurses as pertains to HIV and AIDS as well as increase knowledge on ART management.

5.6.2. Nursing administration

Nursing administration is a process which is related to decisions in which planning, organizing, staffing, directing, coordinating, budgeting are carried out (Basavanthappa, 2007)

Nurse administrators need to intensify continuous monitoring of nursing services to ensure that quality care is delivered and maintained.

To alleviate burn out, Nurse Administrators should ensure that there is adequate number of nurses in ART facilities so that they are able to offer quality and individualized counseling, partner with communities and link patients to relevant cooperating stakeholders.

5.6.3 Nursing education`

According to the study findings, there are several HIV and AIDS programmes and policies that have been formulated and passed in the recent years, for example, MoH 2010 adult and Adolescent Antiretroviral therapy protocols which outline the different ART drug regimen. There is also a new HIV and AIDS Nursing Practitioners Training programme which has been introduced by the MoH. However there is still a high number of nurses who have not yet been trained in ART. Therefore, there is need to continue conducting HIV and AIDS trainings for all the nurses and midwives in the country.

Your consideration will be highly appreciated.

Yours faithfully,

Zulu Debonair

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Senior Medical Superintendent,
University Teaching Hospital,
R/W 1,
LUSAKA

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution .I wish to conduct the research study from 15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Mbambo Musole Yungana

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
Chikankata Mission Hospital,
P/B S2,
MAZABUKA,

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution. I wish to conduct the research study from 15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Kalembela Valerie M

Permissions

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
University Teaching Hospital,
R/W5,
LUSAKA.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

THE UNIVERSITY OF ZAMBIA
SCHOOL OF MEDICINE
9 OCT 2012
DEPARTMENT OF NURSING SCIENCES
PO BOX 50110 LUSAKA

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A PILOT STUDY

Reference is made to the above mentioned subject.

We are 5th year undergraduate Students at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, we are obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS". The researchers are: **Libingi Muleya Linda, Mbambo Musole, Kalembela Valerie M and Zulu Debonair.**
We are for that reason requesting for authority to carry out a pilot study at your institution prior to the main study. We wish to conduct the Pilot study from 08/10/10 to 10/10/12.

Your consideration will be highly appreciated.
Yours faithfully

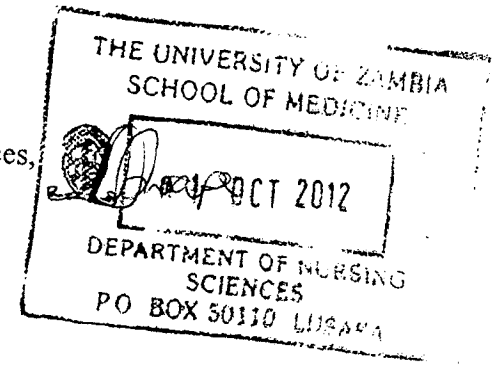
Debonairs Zulu
(Group Leader)

Permissions

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
University Teaching Hospital,
R/W5,
LUSAKA.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.



Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A PILOT STUDY

Reference is made to the above mentioned subject.

We are 5th year undergraduate Students at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, we are obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS". The researchers are: **Libingi Muleya Linda, Mbambo Musole, Kalembela Valerie M and Zulu Debonair.**

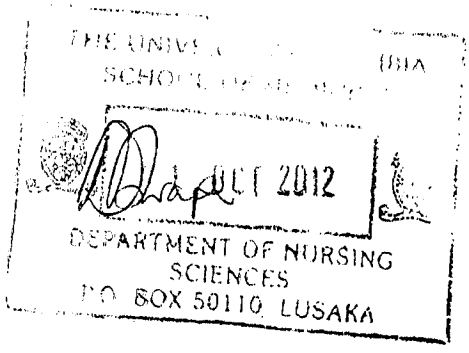
We are for that reason requesting for authority to carry out a pilot study at your institution prior to the main study. We wish to conduct the Pilot study from 08/10/10 to 10/10/12.

Your consideration will be highly appreciated.
Yours faithfully

Debonairs Zulu
(Group Leader)

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Provincial Medical Officer,
The Provincial Medical Office,
P.O. Box, 60206,
Livingstone.
SOUTHERN PROVINCE



U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

We are 5th year undergraduate Students at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, we are obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your province. We wish to conduct the research study from15/10/12 to 02/11/12 in Mazabuka (Chikankata) and Livingstone districts respectively.

Your consideration will be highly appreciated.

Yours faithfully,

Kalembela Valerie M and Libingi Muleya Linda

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

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

8th October, 2012

Kalembela Valerie M
Department of Nursing Sciences
University of Zambia School of Medicine
Post Box 50110, LUSAKA

RE: Your application for permission to carry out project research on 'The relationship between adherence to ART and quality of life in people living with HIV and AIDS.'

The above subject refers.

With regards to your application, I would like to inform you that permission has been granted to you to carry out research study at Chikankata Mission Hospital on the ***The relationship between adherence to ART and quality of life in people living with HIV and AIDS.*** Permission has been granted to you 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;

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

Yours faithfully,

Dr. Zairemthiama Pachuau
MBBS, PDHIV/AidsMan, MPhil, DHA
Chief Medical Officer

THE SALVATION ARMY
CHIKANKATA MISSION HOSPITAL
08 OCT 2012
CHIEF MEDICAL OFFICER
P/B 52, MAZABUKA.

Cc: The Head, Department of Nursing Sciences, University of Zambia School of Medicine
Cc: The Hospital Administrator
Cc: The Senior Nursing Officer
Cc: I/C Nurse, MB ART Clinic

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
Livingstone General Hospital,
P.O.Box 60091,
LIVINGSTONE.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution. I wish to conduct the research study from15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Libingi Muleya Linda

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October. 2012.

The Medical Superintendent.
Mwinilunga District Hospital,
P.O.Box 160003.
MWINILUNGA.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution. I wish to conduct the research study from 15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Zulu Debonair

APPENDIX 6

INFORMED CONSENT

Dear participant,

My name is **Libingi Muleya Linda**, a student from the University of Zambia in the School of Medicine, pursuing a Bachelor of Science in Nursing Programme in the Department of Nursing Sciences.

In partial achievement of the degree of Bsc Nursing, one of the requisite is to undertake a research project. My study topic is the relationship between adherence to ART and quality of life in people living with HIV/AIDS in Livingstone District.

You have been randomly selected to participate in this study and I wish to notify you that involvement in this study is voluntary and you are free to withdraw at any period of the study if you so wish. You will be asked some questions concerning adherence to ART and quality of life. Whichever information you give me will be kept not to be disclosed and no name will be written on the interview schedule.

You will not receive direct benefits from the study or monetary gain. This information you give will help develop better understanding of the adherence to ART and quality of life.

If you have any queries, please get in touch with the head of department of the nursing sciences department of the school of medicine at the University of Zambia on Telephone Numbers-0977754368

I ..... hereby called the participant understands the guidelines of this study and I am agreeable to participate in the study.

Date.....

Signature/ thumb print of respondent.....

Signature of interviewer.....

INFORMED CONSENT

Dear participant,

My names are **Mbambo Musole Yungana,** a student from The University of Zambia in the School of Medicine, pursuing a Bachelor of Science in Nursing Programme in the Department of Nursing Sciences.

In partial achievement of the degree of Bsc Nursing, one of the requisite is to undertake a research project. My study topic is the relationship between adherence to ART and quality of life among people living with HIV/AIDS in Lusaka District.

You have been randomly selected to participate in this study and I wish to notify you that involvement in this study is voluntary and you are free to withdraw at any period of the study if you so wish. You will be asked some questions concerning adherence to ART and quality of life. Whichever information you give me will be kept not to be disclosed and no name will be written on the interview schedule.

You will not receive direct benefits from the study or monetary gain. This information you give will help develop better understanding of the adherence to ART and quality of life.

If you have any queries, please get in touch with the head of department of the nursing sciences department of the school of medicine at the University of Zambia on Telephone Numbers-0977754368

I ..... hereby called the participant understands the guidelines of this study and I am agreeable to participate in the study.

Date.....

Signature/ thumb print of respondent.....

Signature of interviewer.....

INFORMED CONSENT

Dear participant,

My name is **Zulu Debonair,** a student from The University of Zambia in the School of Medicine, pursuing a Bachelor of Science in Nursing Programme in the Department of Nursing Sciences.

In partial achievement of the degree of Bsc Nursing, one of the requisite is to undertake a research project. My study topic is the relationship between adherence to ART and quality of life in people living with HIV/AIDS in Mwinilunga District.

You have been randomly selected to participate in this study and I wish to notify you that involvement in this study is voluntary and you are free to withdraw at any period of the study if you so wish. You will be asked some questions concerning adherence to ART and quality of life. Whichever information you give me will be kept not to be disclosed and no name will be written on the interview schedule.

You will not receive direct benefits from the study or monetary gain. This information you give will help develop better understanding of the adherence to ART and quality of life.

If you have any queries, please get in touch with the head of department of the nursing sciences department of the school of medicine at the University of Zambia on Telephone Numbers-0977754368

I ..... hereby called the participant understands the guidelines of this study and I am agreeable to participate in the study.

Date.....

Signature/ thumb print of respondent.....

Signature of interviewer.....

INFORMED CONSENT

Dear participant,

My name is **Kalembela Valerie M,** a student from The University of Zambia in the School of Medicine, pursuing a Bachelor of Science in Nursing Programme in the Department of Nursing Sciences.

In partial achievement of the degree of Bsc Nursing, one of the requisite is to undertake a research project. My study topic is the relationship between adherence to ART and quality of life in people living with HIV/AIDS in Chikankata District.

You have been randomly selected to participate in this study and I wish to notify you that involvement in this study is voluntary and you are free to withdraw at any period of the study if you so wish. You will be asked some questions concerning adherence to ART and quality of life. Whichever information you give me will be kept not to be disclosed and no name will be written on the interview schedule.

You will not receive direct benefits from the study or monetary gain. This information you give will help develop better understanding of the adherence to ART and quality of life.

If you have any queries, please get in touch with the head of department of the nursing sciences department of the school of medicine at the University of Zambia on Telephone Numbers- 0977754368

I ..... hereby called the participant understands the guidelines of this study and I am agreeable to participate in the study.

Date.....

Signature/ thumb print of respondent.....

Signature of interviewer.....

APPENDIX 7

WHOQOL-HIV INSTRUMENT

UNIVERSITY OF ZAMBIA

SCHOOL OF MEDICINE

DEPARTMENT OF NURSING SCIENCES

TOPIC: The relationship between Adherence to Antiretroviral Therapy and Quality of Life among People Living with HIV and AIDS

Data Collection Tool (Structured Interview Schedule)

Serial Number.....

Name of the Interviewer.....

Date of interviewer.....

Instructions to the interviewer

This question asks how you feel about quality of life, health, and other areas of your life

1. Do not write the name of the respondent on the questionnaire
2. Encircle the selected response for questions with alternatives.
3. Write in the space provided for open ended questions
4. Ensure that all questions are answered
5. Write all responses clearly
6. If you are unsure which response to give a question, please choose the one that appear most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life in the **last two weeks**.

For example, thinking about the last two weeks, a question might ask:

How much do you worry about your health?

1	2	3	4	5
Not at all	A little	A moderate amount	Very much	An extreme amount

You should circle the number that best fits how much you have worried about your health over the last two weeks. So you would circle the number 4 if you worried about your health "Very much", or circle number 1 if you have worried "Not at all" about your health. Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

Thank you for your help

SECTION 1 QUALITY OF LIFE

The following questions ask about **how much** you have experienced certain things in the last two weeks, for example, positive feelings such as happiness or contentment. If you have experienced these things an extreme amount circle the number next to "An extreme amount". If you have not experienced these things at all, circle the number next to "Not at all". You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between "Not at all" and "Extremely". Questions refer to the **last two weeks**.

		Not at all	A little	A moderate	Very	An
1	Do you worry about your pain or discomfort?	1	2	3	4	5
		Not at all	Slightly	Moderately	Very much	Extremely
2	How difficult is it for you to handle any pain or discomfort?	1	2	3	4	5
		Not at all	A little	A moderate amount	Very much	An extreme
3	To what extent do you feel that (physical) pain prevents you from doing what you need to do?	1	2	3	4	5

		Not at all	Slightly	Moderately	Very much	Extremely
4	How easily do you get tired?	1	2	3	4	5
		Not at all	A little	A moderate amount	Very much	An extreme
5	How much are you bothered by fatigue?	1	2	3	4	5
6	Do you have difficulties with sleeping	1	2	3	4	5
7	How much do any sleep problems worry you?	1	2	3	4	5
8	How much are you bothered by any unpleasant physical problems related to your HIV infection?	1	2	3	4	5
9	To what extent do you fear possible future (physical) pain?	1	2	3	4	5
10	To what extent are you bothered by fears of developing any physical problem?	1	2	3	4	5
11	How much do you experience positive feelings in your life?	1	2	3	4	5
12	How much do you enjoy life?	1	2	3	4	5
13	How positive do you feel about the future?	1	2	3	4	5
14	How well are you able to concentrate?	1	2	3	4	5
15	How much do you value yourself?	1	2	3	4	5

16	How much confidence do you have in yourself?	1	2	3	4	5
17	Do you feel inhibited by your looks?	1	2	3	4	5
18	Is there any part of your appearance which makes you feel uncomfortable?	1	2	3	4	5
19	How worried do you feel?	1	2	3	4	5
20	How much do any feelings of sadness or depression interfere with your everyday functioning?	1	2	3	4	5
21	How much do any feelings of depression bother you?	1	2	3	4	5
22	To what extent do you have difficulty in performing your routine activities?	1	2	3	4	5
23	How much are you bothered by any limitations in performing everyday living activities?	1	2	3	4	5
24	How much do you need any medication to function in your daily life?	1	2	3	4	5
25	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
26	To what extent does your quality of life depend on the use of medical substances or medical aids?	1	2	3	4	5
		Slightly	A little	A moderate	Very	Extremely
27	How alone do you feel in your life?	1	2	3	4	5
28	How well are your sexual needs fulfilled?	1	2	3	4	5

29	Are you bothered by any difficulties in your sex life?	1	2	3	4	5
30	How safe do you feel in your daily life?	1	2	3	4	5
31	Do you feel you are living in a safe and secure environment?	1	2	3	4	5
		Not at all	A little	A moderate	Very	An
32	How much do you worry about your safety and security?	1	2	3	4	5
33	How comfortable is the place where you live?	1	2	3	4	5
34	How much do you like it where you live?	1	2	3	4	5
35	Do you have financial difficulties?	1	2	3	4	5
36	How much do you worry about money?	1	2	3	4	5
37	How easily are you able to get good medical care?	1	2	3	4	5
38	How much do you enjoy your free time?	1	2	3	4	5
39	How healthy is your physical environment?	1	2	3	4	5
40	How concerned are you with the noise in the area you live in?	1	2	3	4	5
41	To what extent do you have problems with transport?	1	2	3	4	5
42	How much do difficulties with transport restrict your life?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks, for example activities of daily living such as washing, dressing or eating. If you have been able to do these things completely, circle the number next to "Completely". If you have not been able to do these things at all, circle the number next to "Not at all". You should circle one of the numbers in between if you wish to indicate your answer lies somewhere between "Not at all" and "Completely".

Questions refer to the **last two weeks**.

		Not at all	A little	Moderately	Mostly	Completel
43	Do you have enough energy for everyday life?	1	2	3	4	5
44	To what extent do you feel any unpleasant physical problems prevent you from doing things that are important to you?	1	2	3	4	5
45	Are you able to accept your bodily appearance?	1	2	3	4	5
46	To what extent are you able to carry out your daily activities?	1	2	3	4	5
47	How dependent are you on medications?	1	2	3	4	5
48	Do you get the kind of support from others that you need?	1	2	3	4	5
49	To what extent can you count on your friends when you need them?	1	2	3	4	5

50	To what extent do you feel accepted by the people you know?	1	2	3	4	5
51	To what extent do you feel accepted by your community?	1	2	3	4	5
52	How much do you feel alienated from those around you?	1	2	3	4	5
53	To what degree does the quality of your home meet your needs?	1	2	3	4	5
54	Have you enough money to meet your needs?	1	2	3	4	5
55	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
56	To what extent do you have opportunities for acquiring the information that you feel you need?	1	2	3	4	5
57	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5
58	How much are you able to relax and enjoy yourself?	1	2	3	4	5
59	To what extent do you have adequate means of transport?	1	2	3	4	5

The following questions ask you to say how **satisfied, happy or good** you have felt about various aspects of your life over the last two weeks. For example, about your family life or the energy that you have.

Decide how satisfied or dissatisfied you are with each aspect of your life and circle the number that best fits how you feel about this. Questions refer to the **last two weeks**.

		Very dissatisfied	Dissatisfied	Neither satisfied	Satisfied	Very satisfied
60	How satisfied are you with the quality of your life?	1	2	3	4	5
61	In general, how satisfied are you with your life?	1	2	3	4	5
62	How satisfied are you with your health?	1	2	3	4	5
63	How satisfied are you with the energy that you have?	1	2	3	4	5
64	How satisfied are you with your sleep?	1	2	3	4	5
65	How satisfied are you with your ability to learn new information?	1	2	3	4	5
66	How satisfied are you with your ability to make decisions?	1	2	3	4	5
67	How satisfied are you with yourself?	1	2	3	4	5
68	How satisfied are you with your abilities?	1	2	3	4	5
69	How satisfied are you with the way your body looks?	1	2	3	4	5
70	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5

71	How satisfied are you with your personal relationships?	1	2	3	4	5
72	How satisfied are you with your sex life?	1	2	3	4	5
73	How satisfied are you with the support you get from your family?	1	2	3	4	5
74	How satisfied are you with the support you get from your friends?	1	2	3	4	5
75	How satisfied are you with your ability to provide for or support others?	1	2	3	4	5
76	How satisfied are you with your physical safety and security?	1	2	3	4	5
77	How satisfied are you with the conditions of your living place?	1	2	3	4	5
78	How satisfied are you with your financial situation?	1	2	3	4	5
79	How satisfied are you with your access to health services?	1	2	3	4	5
80	How satisfied are you with the social care services?	1	2	3	4	5
81	How satisfied are you with your opportunities for acquiring new skills?	1	2	3	4	5
81	How satisfied are you with your opportunities to learn new information?	1	2	3	4	5

83	How satisfied are you with the way you spend your spare time?	1	2	3	4	5
84	How satisfied are you with your physical environment (e.g. pollution, climate, noise, attractiveness)?	1	2	3	4	5
84	How satisfied are you with the climate of the place where you live?	1	2	3	4	5
86	How satisfied are you with your transport?	1	2	3	4	5
		Very unhappy	Unhappy	Neither happy	Happy	Very happy
87	Do you feel happy about your relationship with your family members?	1	2	3	4	5
		Very poor	Poor	Neither poor nor	Good	Very good
88	How would you rate your quality of life?	1	2	3	4	5
89	How would you rate your sex life?	1	2	3	4	5
90	How well do you sleep?	1	2	3	4	5
91	How would you rate your memory?	1	2	3	4	5
92	How would you rate the quality of social services available to you?	1	2	3	4	5

The following questions refer to how often you have felt or experienced certain things, for example the support of your family or friends or negative experiences such as feeling unsafe.

If you have not experienced these things at all in the last two weeks, circle the number next to the response "never". If you have experienced these things, decide how often and circle the appropriate number. So for example if you have experienced pain all the time in the last two weeks circle the number next to "Always". Questions refer to the **last two weeks.**

		Never	Seldom	Quite often	Very often	Always
93	How often do you suffer (physical) pain?	1	2	3	4	5
94	Do you generally feel content?	1	2	3	4	5
95	How often do you have negative feelings, such as blue mood, despair, anxiety, depression?	1	2	3	4	5
96	How often do you feel you are discriminated against because of your health condition	1	2	3	4	5

The following questions refer to any "**work**" that you do. Work here means any major activity that you do. This includes voluntary work, studying full-time, taking care of the home, taking care of children, paid work or unpaid work. So work, as it is used here, means the activities you feel take up a major part of your time and energy. Questions refer to the **last two weeks.**

		1	2	3	4	5
97	Are you able to work?	Not at all	A little	Moderately	Mostly	Completely
		1	2	3	4	5
98	Do you feel able to carry out your duties?	Not at all	A little	Moderately	Mostly	Completely
		1	2	3	4	5
99	How satisfied are you with your capacity for work?	Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
		1	2	3	4	5
100	How would you rate your ability to work?	Very poor	Poor	Neither poor nor good	Good	Very good

The next few questions ask about **how well you were able to move around**, in the **last two weeks**. This refers to your physical ability to move your body in such a way as to allow you to move about and do the things you would like to do, as well as the things that you need to do.

		Very poor	Poor	Neither poor nor	Good	Very
101	How well are you able to get around?	1	2	3	4	5
		Not at all	A little	A moderate	Very much	An
102	How much do any difficulties in mobility bother you?	1	2	3	4	5
103	To what extent do any difficulties in movement affect your way of life?	1	2	3	4	5
104	How satisfied are you with your ability to move around?	1	2	3	4	5

The following few questions are concerned with **your personal beliefs**, and how these affect your quality of life. These questions refer to religion, spirituality and any other beliefs you may hold. Once again these questions refer to **the last two weeks.**

		Not at all	A little	A moderate	Very	An
105	Do your personal beliefs give meaning to your life?	1	2	3	4	5
106	To what extent do you feel your life to be meaningful?	1	2	3	4	5

107	To what extent do your personal beliefs give you the strength to face difficulties?	1	2	3	4	5
108	To what extent do your personal beliefs help you to understand difficulties in life?	1	2	3	4	5
109	To what extent are you bothered by people blaming you for your HIV status?	1	2	3	4	5
110	How guilty do you feel about being HIV positive?	1	2	3	4	5
111	To what extent do you feel guilty when you need the help and care of others?	1	2	3	4	5
112	To what extent are you concerned about your HIV status breaking your family line and your future generations?	1	2	3	4	5
113	To what extent are you concerned about how people will remember you when you are dead?	1	2	3	4	5
114	To what extent do any feelings that you are suffering from fate or destiny bother you?	1	2	3	4	5
115	How much do you fear the future?	1	2	3	4	5
116	How much do you worry about death?	1	2	3	4	5
117	How bothered are you by the thought of not being able to die the way you would want to?	1	2	3	4	5
118	How concerned are you about how and where you will die?	1	2	3	4	5

119	How preoccupied are you about suffering before dying?	1	2	3	4	5
		Not at all	A little	Moderatel y	Mostly	Completel
120	How much do you blame yourself for your HIV infection?	1	2	3	4	5

SECTION II DEMOGRAPHIC AND CLINICAL CHARACTERISTICS DATA

121. How old are you? (At last birthday). _____years

122. What is your gender?

1. Male
2. Female

123. What is your marital status?

1. Single
2. Married
3. Living as married
4. Separated
5. Divorced
6. Widowed

124. Residential Area

1. Rural
2. Urban

125. Level of Education

1. None at all
2. Primary
3. Secondary
4. College
5. University
6. Postgraduate

126. Occupation

1. Not employed
2. Student
3. Employed
4. Full time Housework

127. How much is your household income per month?

1. Below K150, 000
2. K150, 000-K250, 000
3. K250, 000-K500, 000
4. Above K500, 000

128. What is your primary tribe?

1. Tonga
2. Lozi
3. Nyanja
4. Bemba
5. Lunda
6. Kaonde
7. Luvale

8. Other (specify) _____

129. How is your health?

1. Very poor
2. Poor
3. Neither poor nor good
4. Good
5. Very good

130. Do you consider yourself currently ill?

1. Yes
2. No

131. If something is wrong with your health what do you think it is? _____

_____

Please respond to the following questions if they are applicable to you:

132. What is your **HIV serostatus**?

1. Asymptomatic
2. Symptomatic
3. AIDS converted

133. In what year did you first **test positive** for HIV?

_____

134. In what year do you think you were infected?

_____

135. How do you believe you were **infected with HIV**? (Circle one only):

1. Sex with a man
2. Sex with a woman
3. Injecting drugs
4. Blood products
5. Other (specify) _____

136. Are you taking ARVs?

1. No
2. Yes

137. If you are taking ARVs, for how long have you been taking ARVs? _____months

138. What is your CD4 count? _____

139. How has your HIV status affected your life?

_____

_____

_____

_____

140 Do you have any comments about the questionnaire?

SECTION III ADHERENCE TO ARVS

141 Date of diagnosis

_____

142 Date of commencement of ARV

_____

143 Expected number of days of treatment

_____

144 Actual number of days of treatment

_____

145 Missed number of days of treatment

_____

146 Reasons for missing treatment

_____

_____

147. Do you have any comments about the questionnaire?

_____

_____

_____

_____

THANK YOU FOR YOUR TIME AND HELP

The General Nursing Council of Zambia should consider integrate the HIV and AIDS Nursing Practitioners Training programme into the new nursing curriculums so that all graduating nurses can acquire the necessary knowledge needed in the management of HIV and AIDS clients.

5.6.4 Nursing Research

Nursing Research is defined as scientific process that validates and refines existing knowledge and generates new knowledge that directly and indirectly influences the delivery of evidence based nursing practice (Burns, 2009).

This is the first study to be conducted on Adherence to ART medications and QoL among people living with HIV and AIDS in Lusaka, Livingstone, Chikankata and Mwinilunga. Therefore, there is need to carry out further studies to establish the impact of adherence ART medications on people living with HIV and AIDS.

Another study should be conducted to assess adherence to ART medication and their impact on individual domains of QoL (physical, psychological, social and environment)

5.7 CONCLUSION

The study has revealed that the quality of life among people living with HIV and AIDS in almost all the respondents was good as a result of many factors which include adherence to ART medications, government policies of free ART medication and the efforts of the hard working health care providers

The study has also shown that the majority of the respondents adhered to their antiretroviral therapy. This is attributed to the comprehensive and continuous adherence counseling given at every visit, the consistent and free supply of ARVs and other health services, the voluntary service of treatment supporters and the commitment of professional health personnel.

On the relationship between adherence to ART and QoL, the study revealed that the respondents with poor QoL had good adherence, while some respondents with good QoL also had poor adherence, showing that there is no relationship between the two variables. There is no variability to support the research hypothesis.

In conclusion, the study has failed to find enough statistical evidence to support the research hypothesis which states that as adherence to ART medications among people living with HIV and AIDS increases QoL of life will also improve. This means that statistically there is no relationship between adherence to ART medications and QoL in people living with HIV and AIDS.

5.8 RECOMMENDATIONS

5.8.1 Ministry of Health

Lusaka, Livingstone, Chikankata, and Mwinilunga are health institutions that are hit by the problem of shortage of health workers of all categories. The ministry of health through the office of the provincial medical office should continue improving staffing to these health institutions so that education, promotion and counseling are provided adequately. In-service training of staff in counseling skills and strategies to improve adherence must be conducted in these health institutions.

When assessing QoL during this study, a WHO QoL likert scale instrument was used. We recommend that the Ministry should liaise with NAC, WHO, UNICEF and other relevant stakeholders to review and adapt this instrument to the Zambian set up.

5.8.2 Health Institutions

All the research sites had inadequate infrastructure to cater for the increased number of ART clients. Therefore, there is need to improve infrastructure in terms of more rooms.

The facilities also had a huge turn up of HIV clients; meanwhile the health personnel attending to them were few. Therefore, the health institution must employ adequate staff if quality health care delivery is to be attained.

5.8.3 General Nursing Council of Zambia

GNC should ensure that the scope of practice for nurses should be operationalised as enshrined in the Nurses and Midwives Act of 1997. For example, prescribing medication in the light of the training of nurses as HIV Nurse Practioners which is currently being implemented.

The General Nursing Council of Zambia should consider integrate the HIV and AIDS Nursing Practitioners Training programme into the new nursing curriculums so that all graduating nurses can acquire the necessary knowledge needed in the management of HIV and AIDS clients

5.9 DISSEMINATION OF FINDINGS

The researchers intend to disseminate the findings by making copies of the study document and send them to programme and policy decision makers. Full copies of the study will be distributed to the department of Nursing Sciences of the School of Medicine and the medical library of the University of Zambia. Executive summaries will be distributed to the Ministry of Health, Provincial health Offices (Lusaka, Southern, and North Western), research sites, that is, Lusaka, Livingstone, Chikankata and Mwinilunga and DFID through Tropical Health Education Trust. Furthermore, the researchers intend to disseminate findings in meetings and seminars which are held in the respective districts on HIV and AIDS matters.

5.10 LIMITATIONS OF THE STUDY

The researchers could not tell by the self reports given by the respondents whether the information given was truthful or not. The time frame to do the study was inadequate which made the researchers to sometimes work under stress. The questionnaire administered to the respondents was too long such that most clients complained of being tired along the way however the researchers encouraged the respondents to continue up to the end.

The allocated financial resources (project allowance) for the study were not adequate in that the researchers had to supplement the costs. The study was also conducted by the researchers alone due to limitation in funds to train research assistants. As a result with the limitation in time, the study did not use other data collection methods such as focus group discussions and observation to supplement on the data collected from structured interview schedules. In addition to that, health facility factors could have had a negative impact on patients' adherence to ARV medication such as opening and closing times of the clinic, and adequacy of rooms for ART services which were not investigated due to limitation in time. Furthermore, the study did not measure the quality of adherence counseling and its impact on patient's adherence to HAART.

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APPENDIX 1 WORK PLAN

TASK	DATES	PERSON DAYS	PERSON RESPONSIBLE
Research Proposal Development	18/06/12 to 21/09/12	67 days x 4 (268 days)	Researchers (4)
Finalize Research Proposal	24/09/12 to 28/09/12	5 days x 4 (20days)	Researchers (4)
Ethics Approval	01/10/12 to 05/10/12	5 days x 4 (20 days)	Researchers (4)
Pilot Study	08/10/10 to 10/10/12	2 days x 4 (8 days)	Researchers (4)
Data collection tool amendments	11/10/12 to 12/10/12	2 days x 4 (8 days)	Researchers (4)
Data Collection	15/10/12 to 02/11/12	15 days x 4 (60 days)	Researchers (4)
Data Analysis	05/11/12 to 07/12/12	25 days x 4 (100 days)	Researchers (4)
Report Writing	10/12/12 to 04/01/13	20 days x 4 (80 days)	Researchers (4)
Submission of First Draft Report	07/01/13	1 day x 4 (4 days)	Researchers (4)
Finalize Research Report	28/01/12 to 08/04/12	50 days x 4 (200 days)	Researchers (4)
Collect Report & Work on Comments	10/04/12	1 day x 4 (4 days)	Researchers (4)
Submit corrected copy	20/04/13	1 day x 4 (4 days)	Researchers (4)
Final Binding	05/05/13	1 day x 4 (4 days)	Researchers (4)
Monitoring and Evaluation	On going	On going	Researchers and the Supervisor (5)

APPENDIX 2 GANNT CHART

TASK	PERSONS RESPONSIBLE	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Research Proposal Development	Researchers	→	→	→									
Finalize Research Proposal	Researchers				→								
Ethics Approval	Researchers					▸							
Pilot Study	Researchers					▸							
Data collection tool amendments	Researchers					▸							
Data Collection	Researchers					→	→						
Data Analysis	Researchers						→	→					
Report Writing	Researchers							→					
Submission of First Draft Report to Research Supervisor	Researchers								▸				
Finalize Research Report	Researchers								→	→	→		

APPENDIX 2 CONTINUES ON NEXT PAGE

APPENDIX 2 CONTINUES

TASK	PERSONS RESPONSIBLE	JUN	JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY
Collect Report & Work on Comments	Researchers											→	
Submit corrected copy for approval	Researchers											→	
Final Binding	Researchers												→
Monitoring and Evaluation	Researchers and the supervisor	→	→	→	→	→	→	→	→	→	→		

APPENDIX 3 RESEARCH BUDGET

Item Description	Unit Cost in Kwacha	Quantity	Total Cost
Stationary Requirements			
Reams of paper	35,000.00	5 Reams	175,000.00
Pens	1,500.00	40	60,000.00
Scientific calculator	75,000.00	4	300,000.00
Stapler	30,000.00	4	120,000.00
Staples	15,000.00	4	60,000.00
Filing Clips	1.500.00	20	30,000.00
Folders	1,500.00	20	30,000.00
Markers	25,000.00	4 Boxes	100,000.00
Note Book	5,000.00	4	20,000.00
Hp Ink Cartridge	750,000.00	4	3,000,000.00
Research Bag	50,000.00	4	50,000.00
Flash Disk	100,000.00	4	400,000.00
Subtotal			**4,345,000.00**

APPENDIX 3 CONTINUES ON NEXT PAGE

APPENDIX 3 CONTINUES

Item Description	Unit Cost in Kwacha	Quantity	Total Cost
Field work and travel expenses for the investigator			
Transport	50,000.00	15 days **(x 4 persons)**	3,000,000.00
Meal allowance	50,000.00	15 days **(x 4 persons)**	3,000,000.00
Subtotal			**6,000,000.00**
Secretarial Services			
Research proposal typing and photocopying	3000.00	200 pages	600,000.00
Report typing and photocopying	3,000.00	200 pages	600,000.00
Binding the Report	80,000.00	7 Copies	560,000.00
Subtotal			**1,760,000.00**
Sub Total			**12,105,000.00**
Total Contingency 10%			1,210,000.50
GRAND TOTAL			**13,315,000.50**

APPENDIX 4

BUDGET JUSTIFICATION

The budget for the research proposal was planned to facilitate easy carrying out of the study which was done in Livingstone, Chikankata, Mwinilunga and Lusaka. For this to be achievable a number of costs were incurred as administrative and technical costs such as stationery, field work and travel, secretarial and contingency.

Stationery

During the research study, the researchers required stationery such as reams of paper for typing research proposal and questionnaires, pens and markers for writing, stapler and staples for securing papers together, and folders and file clips for filing research documents. The HP ink Cartilage and the calculator were needed for printing the research proposal and for data analysis respectively. The note books were used for writing notes and the research bag was used for carrying various items for research. Additionally a flash disk was used to store data and for monitoring and evaluation by the research supervisor.

Field Work and Travel

The researchers required money for transport to and from the research setting and lunch allowance.

Secretarial Services

Finances were also required for the following secretarial services; typing and photocopying research proposal, questionnaire and report including binding of final research reports.

10% Contingency of Total Amount

A 10% contingency of the total budget was added in case of unexpected costs and also to cater for inflation.

APPENDIX 5 PERMISSIONS

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
University Teaching Hospital,
R/W5,
LUSAKA.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A PILOT STUDY

Reference is made to the above mentioned subject.

We are 5th year undergraduate Students at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, we are obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS". The researchers are: **Libingi Muleya Linda, Yung'ana Mbambo Musole, Kalembela Valerie M and Zulu Debonair.**

We are for that reason requesting for authority to carry out a pilot study at your institution prior to the main study. We wish to conduct the Pilot study from 08/10/10 to 10/10/12.

Your consideration will be highly appreciated.
Yours faithfully

Debonair Zulu
(Group Leader)

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Provincial Medical Officer,
The Provincial Office,
P.O.BOX
Lusaka.
LUSAKA PROVINCE.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am a 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a pilot study at your province. I wish to conduct the research study from 08/10/12 to 10/10/12.

Your consideration will be highly appreciated.

Yours faithfully,

Yung'ana Mbambo Musole

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Provincial Medical Officer,
The Provincial Medical Office,
P.O. Box, 60206,
Livingstone.
SOUTHERN PROVINCE

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

We are 5th year undergraduate Students at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, we are obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your province. We wish to conduct the research study from15/10/12 to 02/11/12 in Mazabuka (Chikankata) and Livingstone districts respectively.

Your consideration will be highly appreciated.

Yours faithfully,

Kalembela Valerie M and Libingi Muleya Linda

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Provincial Medical Officer,
The Provincial Medical Office,
P.O.Box
Solwezi,
NORTHWESTERN PROVINCE

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am a 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study in your province. I wish to conduct the research study from15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Zulu Debonair.

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
Livingstone General Hospital,
P.O.Box 60091,
LIVINGSTONE.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution. I wish to conduct the research study from15/10/12 to 02/11/12.

Your consideration will be highly appreciated.

Yours faithfully,

Libingi Muleya Linda

University of Zambia,
School of Medicine,
P.O Box 50110,
LUSAKA.
8th October, 2012.

The Medical Superintendent,
Mwinilunga District Hospital,
P.O.Box 160003.
MWINILUNGA.

U.F.S: The Head,
Department of Nursing Sciences,
School of Medicine,
P.O Box 50110,
LUSAKA.

Dear Sir/Madam,

RE: PERMISSION TO CARRY OUT A RESEARCH STUDY

Reference is made to the above mentioned subject.

I am 5th year undergraduate Student at The University of Zambia, School of Medicine, Department of Nursing Sciences. In partial accomplishment of the Bachelor of Science Nursing degree programme, I am obliged to conduct a research study. The title of our study is "the relationship between adherence to ART and quality of life in people living with HIV and AIDS".

I am for that reason requesting for authority to carry out a research study at your institution. I wish to conduct the research study from 15/10/12 to 02/11/12.