A STUDY TO EXPLORE FACTORS THAT INFLUENCE ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV AND AIDS ADULT PATIENTS ATTENDING ANTIRETROVIRAL CLINIC AT BEATRICE ROAD INFECTIOUS DISEASE HOSPITAL, HARARE, ZIMBABWE

by

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DECLARATION

I declare that **A STUDY TO EXPLORE FACTORS THAT INFLUENCE ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG HIV AND AIDS ADULT PATIENTS ATTENDING ANTIRETROVIRAL CLINIC AT BEATRICE ROAD INFECTIOUS DISEASE HOSPITAL, HARARE, ZIMBABWE** is my own work and that the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

Signature: G. Nkomo

04 May 2014

Full Names: **Date**

Mrs G Nkomo

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ABSTRACT

Human Immunodeficiency Virus (HIV) and Acquired Immune Deficiency Syndrome (AIDS) is a global problem. Introduction of antiretroviral therapy (ART) came as a relief to people living with HIV and AIDS as it improved their quality of life. However, maintaining high adherence levels to antiretroviral treatment is still a challenge in some settings yet strict adherence to treatment instructions is critical for successful suppression of HIV.

A qualitative, descriptive phenomenological research was conducted to explore factors that influence adherence to antiretroviral therapy at Beatrice Road Infectious Disease Hospital (BRIDH).

Purposive homogenous sampling was done. Data was collected from twenty patients through in-depth interviews.

Study findings identified five main themes that facilitate adherence and these entail knowledge on HIV and AIDS and ART, motivation to live, adherence support networks, good service delivery and factors related to medication.

KEY WORDS

Adherence; adult; antiretroviral therapy; HIV; AIDS; influence; factor.

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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

HIV (Human Immunodeficiency Virus) and AIDS (Acquired Immune Deficiency Syndrome) is a global problem and is one of the most destructive epidemics that the world has ever witnessed (Ayalu, Reda & Sibhatu 2011:1). In the absence of cure antiretroviral therapy (ART) is the only treatment for HIV.

The introduction of antiretroviral therapy (ART) coupled with expanded coverage in patients accessing ART has improved the quality of life and survival since about half of the people with a CD4 count less than 350 per ml, the current threshold for initiating treatment would die within 2 years if they did not get ARV treatment (UNAIDS 2012a:50). In response to the patients demand for treatment, Zimbabwe Government through the Ministry of health introduced the antiretroviral therapy (ART) programme in 2004 and since then many ART sites have been expanded throughout the country to ensure easy access to antiretroviral treatment (UNAIDS 2012b:30). As access to ART increased, concerns have been raised on how to maintain optimal adherence to ART. To achieve effective treatment ART requires a high adherence rate of 95% and above, but the challenge now remains on how to sustain such high percentage of adherence over long term (Ayalu et al 2011:1). Sub-optimal adherence has been reported to cause drug resistance.

Antiretroviral treatment is complex in the sense that it requires strict adherence to scheduled time and stick to dietary requirements. At the ART clinic, once a patient has been considered eligible for treatment, the patient is offered counselling on the treatment regimens and adherence, then commenced on ART. The patients are required to take the treatment as prescribed, attend monthly review where progress is monitored and is also provided with monthly supply of antiretroviral drugs. The patient is expected to adhere all the treatment instructions but sometimes it may not be possible therefore viral suppression may not be maintained (Ministry of Health and Child Welfare 2009b:12).

This study therefore explored PLWHA personal experiences of taking ARVs and assessed various factors that are required to increase and maintain the adherence levels to ART.

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

Globally 34 million people were reported to live with HIV and AIDs and 1.8 million people had died of AIDS related illnesses by end of 2009 (World Health Organization [WHO] 2010:1). In Sub-Saharan Africa, ART clinics were scaled up and the number of people who were on ART tremendously increased from an estimate of almost 100 000 people in 2003 to 3.9 million in 2009 in (Ayalu et al 2011:1).

Zimbabwe is among the countries that are mostly affected by the HIV and AIDS epidemic (UNAIDS 2012b:32). In 2011 an estimate of 1,159,097 million adults and children were living with HIV and AIDS in Zimbabwe (UNAIDS 2012b:1, and an estimate of about 597 293 patients were in need of antiretroviral therapy (ART) as of December 2011 (UNAIDS 2012b:1). In response tremendous strides were made in scaling up ART clinics such that by December 2011, 141 initiating sites and 449 follow up sites were fully functional in Zimbabwe (UNAIDS 2012b:31). The concern remains on ensuring that optimal adherence is maintained in this long life complicated treatment. Skovdal, Campbell, Nyamukapa and Gregson (2011b:1) also cited that ART being a complex treatment, requires not only availability of the ART sites, but need to ensure that patients carefully adhere to the treatment regimens so as to prevent drug resistance and improve on survival.

Antiretroviral treatment is complex as it is influenced by several factors and because of its complexity, Skovdal, Campbell, Nhongo, Nyamukapa and Gregson (2011a:297) recommended the need to carry out more studies that would identify factors that influence ART adherence. Zuurmond (2008:4) identified availability of food, maintaining good nutrition, availability of a strong supportive family and support group meetings for people living with HIV and AIDS as some of the factors that can influence adherence to ART. Stigma attached to HIV which sometimes prevented patients from taking the ARVs from public institutions, high costs of ARVs, inaccessibility of ART clinics and sometimes poor quality of ART service delivery were some of the factors that contributed to non-adherence to ART (Zuurmond 2008:11). According to Jean-Baptiste

(2008:16), the most common reasons for non-adherence was due to forgetfulness, competing priorities, away from home during the scheduled time, depression and minimal support from family and friends.

A study from Ayalu et al (2011:2) revealed lack of HIV disclosure to children had negative influence on adherence to ART as some children refused to take the medicines. Other factors such as stigma, high user fees, failure to notice change in one health status and interruption of supply of antiretroviral drugs greatly contributed to non-adherence in most developing countries (Posse, Mehew, Van Asten, Van Der Ven & Baltussen 2008:905; Ayalu et al 2011:2).

Despite the fact that some African countries had resource constraints high levels of ART adherence were noted in these poor resource settings (Campbella, Skovdal, Mupambireyi, Madanhire, Nyamukapa & Gregson 2012:123). Zimbabwe was among these countries that had good adherence levels (Campbella et al 2012:129), however, barriers such as poor service delivery, high service charges, limited support from family members, shortage of trained health workers and poor nutrition were some of the challenges that needed to be addressed.

In Nepal, Wasti, Randall, Simkhuda and Teijlingen (2011:40) identified ethnic and cultural beliefs as a barrier ART adherence, as the Nepalese culture did not allow open discussion about HIV and AIDS hence there was promotion of stigma and discrimination which adversely affected their adherence to ART. However, Wasti et al (2011:43) viewed ART adherence as a management issue between ARV receivers and health care providers where the decision to adhere is merely the choice of the patient which can be influenced by ones cultural or religious beliefs.

1.3 THE RESEARCH PROBLEM

Strict adherence to treatment instructions is critical for successful suppression of the immunodeficiency virus but maintaining high levels of adherence levels has been seen as a challenge some settings (Skovdal et al 2011a:297). It was also noted that there was an exponential increase in the number of people in need of ART after WHO recommended to commence HIV patients with a CD4 cell count of 350 and below regardless of their WHO clinical staging (Ministry of Health and Child Welfare

2009b:24). Zimbabwe recorded the highest rise in enrolment, with an increase of almost 50% in the number of people receiving treatment between December 2009 and December 2010 (WHO, UNICEF & UNAIDS 2011:98), the problem is how to maintain the high levels of adherence required for maximum viral suppression. Generally it is known that drugs do not work in patients who are not consistent with the treatment (Osterburg & Blaschke 2005:487). Patients with chronic conditions sometimes fail to adhere to the prescribed treatment and the problem now extents to people living with HIV (PLHIV) on ART who are also now classified as chronic after the introduction of antiretroviral therapy. Furthermore ART is a complex treatment which requires timely and daily administration of the drug and that can only be possible if there is commitment and participation from the individuals coupled with other necessary support (Skovdal et al 2011a:301). For one to fully enjoy the benefits of the antiretroviral treatment, a minimum adherence level of 95 % or greater is needed to maintain undetectable viral loads among patients treated with highly active antiretroviral therapy (HAART) but this has not been possible with some patients (Jean Baptiste 3008:5). In 2011, poor adherence levels were reported in poor African countries where about 25% of the ARV users, were still struggling to adhere and were at risk of clinical progression and drug resistance (Skovdal et al 2011a:296). If a patient develops resistance to first line of antiretroviral therapy this may warrant shifting to second line therapy (Zuurmond 2008:5) which may be very expensive and sometimes very difficult to access. The problem of drug resistance was also reported in the Zimbabwe Herald (Zimbabwe Records HIV Treatment Failure 2012:1) where almost 8 000 Zimbabweans living with HIV could not be treated after they developed resistance to the first line of antiretroviral drugs.

Although no challenges were encountered in accessing the treatment as ART clinics were rolled out throughout the country, what is required now is to ensure that the individuals on ART maintain high levels of adherences. Skovdal et al (2011a:297) also argued that the success to ART should not only be measured by the total number of clients on ART alone, but should also consider the number of patients who strictly adhere to this lifelong treatment.

In view of the continuous increase in number of patients on ART, coupled with reported poor adherence levels and increased cases of drug resistance, there is need to explore

deeply factors that may facilitate high levels of adherence from the individuals who had the experiences of taking ART.

1.4 AIM OF THE STUDY

The study aims to explore the factors contributing to adherence of ART among adult patients attending ART clinic at Beatrice Infectious Disease Hospital (BRIDH). The hospital is a public health institution owned by City of Harare is situated in Mbare high density suburbs in Harare.

1.4.1 Research purpose

The purpose of the study is to explore individual level factors and explain events as close as possible to the lived experience of the individual.

1.4.2 Research objective

- To explore individual level factors that promote adherence to antiretroviral treatment within the programme, socio-cultural and service delivery context among clients attending ART clinic in Zimbabwe.

1.4.3 Research question

- What are the various facilitators that promote ARV adherence from the patients' perspective?

1.5 SIGNIFICANCE OF THE STUDY

The study explored factors that influenced individuals to adhere to antiretroviral therapy and also explored factors surrounding the individual that would be implemented to increase patients' adherence levels. Maintaining high adherence levels would make patients enjoy fully the benefits of ART when they realise improvement in their quality of life. There will also be reduction of mortality and morbidity due to AIDS thereby lessening the number of orphaned children due to HIV and AIDS. Furthermore, if high levels of adherence are maintained patients will continue on first line therapy which is

much cheaper and the burden of switching over patients to second line therapy as a result of drug resistance will be reduced.

1.6 DEFINITIONS OF KEY CONCEPTS

1.6.1 Adherence

Adherence in this study is defined as the extent to which patients take medications as prescribed by their health care providers (Osterburg & Blaschke 2005:487).

1.6.2 Adult

An adult is a person older than 19 years of age unless national law defines a person as being an adult at an earlier age (WHO 2013:13). In Zimbabwe an adult is referred to a person who has attained the legal age of maturity (Parliament of Zimbabwe 1982). In this study adult refers to a person who has attained 18 years and above.

1.6.3 AIDS

Acquired Immunodeficiency Syndrome (AIDS) is defined as a fatal disease caused by HIV virus, the HIV virus destroys the body's ability to fight off infection and disease (UNAIDS 2009:7).

1.6.4 Antiretroviral therapy

Antiretroviral therapy is any combination of drugs that have the primary intent to prevent the progression of AIDS (Posse et al 2008:905).

1.6.5 CD4 cell

CD4 cell is a type of T-cells involved in protecting against viral, fungal and protozoa infections. Destruction of CD4 is the major cause of immunodeficiency observed in AIDS (Cichocki 2008:1).

1.6.6 Factor

In this study a factor is defined as an independent variable (*Wikipedia* 2013).

1.6.7 First line therapy

First line therapy in this study is defined as most common antiretroviral drug combination given to those beginning treatment consisting of two Nucleoside Reverse Transcriptase Inhibitors combined with an Non-nucleoside reverse transcriptase Inhibitors or a boosted protease inhibitor (Avert 2012).

1.6.8 Influence

Influence in this study is defined as the capacity or power of a person or things to be a compelling force on or produce effects on the actions, behaviour or opinion (The American Heritage Dictionary of the English Language 2009).

1.6.9 Non-adherence

Non-adherence in this study is defined as when one misses doses completely, as well as taking drugs inappropriately, that involves taking doses at the wrong times or not adhering to dietary requirements associated with a drug (Jean-Baptiste 2008:5).

1.6.10 Second line therapy

Second line therapy in this study is referred to as drugs given to a person if HIV becomes resistant to the first line combination or if side-effects are particularly bad and include a minimum of three new drugs, with at least one from a new class (Avert 2012).

1.6.11 Viral load

Viral load is a measure of the severity of viral infection and can be calculated by estimating the amount of virus in an involved body fluid and also indicates the efficacy of the medication (Cichocki 2007:1).

1.7 META THEORETICAL ASSUMPTIONS

In this study it was assumed that information given by participants through in-depth interviews would be a true reflection of what makes one to adhere. Furthermore, it was assumed that participants would not give social desirable answers but only the truthful answers basing on their experiences. Sometimes participants may be suspicious and want to please the researcher by giving inaccurate answers that may lead to bias (Joubert & Ehrlich 2007:108).

1.8 RESEARCH DESIGN AND METHODS

The design of the study, methods, sample selection and data collection methods will be discussed.

A qualitative study, descriptive phenomenology, was conducted as it was the most suitable design to use when a problem or issue needs to be explored (Creswell 2007:39). Use of descriptive phenomenological approach allowed participants to describe their experience of things as they experienced them and these included hearing, seeing, believing, feeling, remembering, deciding, evaluating and acting (Polit & Beck 2012:495). The qualitative design method used by the researcher made it possible to explore and understand the meaning of individuals ascribed to a social or human problem (Creswell 2009:4). Face to face interviews are most suitable when one requires to explore multiple realities that are based on the actual words of participants (Creswell 2007:18). In this study the researcher conducted face to face interviews where multiple realities were identified basing on the actual words of participants.

The study population comprised of HIV positive adults on antiretroviral therapy attending antiretroviral therapy clinic at Beatrice Road Infectious Disease Hospital (BRIDH) in Harare. Non-probability sampling was applied. The participants were identified through purposeful homogenous sampling. The inclusion criteria comprised of clients above 18 years attending ART clinic at BRIDH with the following characteristics:

- Confirmed HIV positive diagnosis
- Currently taking ARV treatment
- Has been taking ARV treatment for at least three months

- Able to provide informed consent

Only those who met the inclusion criteria participated. Data was collected through in-depth interviews with the aid of a semi-structured interview guide. Detailed notes were taken and the conversations were also audio-taped.

Data was analysed so as to elicit meaning from the data. The data was manually analysed. Information from field notes were cross checked with verbatim responses of the participants and also stored electronically. The audio tapes were transcribed into text and stored the information electronically as word document. The researcher read through the transcripts several times so as to get an understanding of the responses from the participant and to search for themes and segments. Common themes that facilitate adherence to antiretroviral therapy were identified.

1.9 SCOPE OF THE STUDY

The study was limited to only one hospital in Harare, Beatrice Road infectious Disease Hospital.

1.10 STRUCTUREOF DISSERTATION

Chapter 1 gives an orientation of the study where background, research problem, aims and objectives, significance of study were discussed.

Chapter 2 comprises of detailed information on literature review.

Chapter 3 covers information on research design and methods used.

Chapter 4 addresses findings of the study and the discussions section.

Chapter 5 covers the conclusion, limitations and recommendations that can improve the ART programme.

1.11 CONCLUSION

In this chapter the background information, the research problem, aim and objectives, definition of terms and significance of study was discussed. A summary of the research design, research methods and data analysis was discussed.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

The aim of this chapter is to have a better understanding of the factors which affect adherence to antiretroviral treatment (ART). Literature review is conducted by researchers to determine how best to make a contribution to existing evidence and it also guides the researcher at the end of the study to assess if the findings are similar with other researchers' findings (Polit & Beck 2012:95). There have been numerous studies aiming to identify and improve factors that can facilitate ART adherence after realisation of the central role played by adherence in success of ART (Wekesa 2007:1). From the literature review there has been an overwhelming amount of evidence from clinical trials published which validated the use of ART as the only treatment known so far that suppresses HIV.

This chapter will discuss HIV pathology, HIV screening methods, HIV treatment, benefits of ART, overview of the ART programme, measurement of ART adherence and review literature on previous studies done on ART adherence.

2.2 HIV PATHOLOGY AND MODE OF TRANSMISSION

HIV was unknown until early 1980s and since then millions of people have been affected (Klaat 2013:6). The most affected age group are young persons aged between 15-24 years and this has affected the natural economies of the countries because of the loss of young to middle aged who are economically productive (Klaat 2013:6). When the HIV enters the bloodstream it attacks the white blood cell called T-Helper lymphocytes which are essential to the functioning of the immune system (Shaw 2013). Damage to the immune system, which is marked by depletion of the CD4 T-lymphocytes, exposes the infected person to opportunistic infections and malignancies (Shaw 2013).

HIV is transmitted from one person to another through the contact of body fluids (Klaat 2013:26) and mothers who are infected with the HIV can pass the virus to their babies during pregnancy, at time of delivery through the birth canal or through breast milk. A person may take approximately 6 to 8 weeks to seroconvert to HIV positive status after contracting the infection and it is also estimated that one can live up to 8 to 10 years on average without treatment, before developing the clinical signs and symptoms of AIDS (Klaat 2013:26). There may be a risk of these HIV infected persons spreading the infection unknowingly as most of them are asymptomatic and do not seek medical treatment.

2.3 HIV SCREENING METHODS AND TESTS

People infected with HIV cannot be recognised by appearance alone, since some of them will be asymptomatic during the early stages, therefore as a strategy to reduce new HIV infection, all people are encouraged to have an HIV test even if one is well (Ministry of Health and Child Welfare 2009b:6). Most commonly used two types of HIV screening methods consists of the Rapid HIV testing and the Conventional HIV testing algorithm (CDC 2009). In Zimbabwe, the Rapid test method is the most frequently used (Ministry of Health and Child Welfare 2009b:6). HIV testing services were scaled up through the national roll out of the Provider Initiated HIV Testing and Counselling programme (Ministry of Health and Child Welfare 2009b:6). The rapid test is the most commonly used because of its convenience as it can be performed at the point of care, test is simple to perform, requires minimal equipment and results are made available within 10-30 minutes (CDC 2009). However, because of the limitations of the rapid test as it indicates the presence of antibodies only, a confirmatory test such as Western blot or Immunofluorence Assay (IFA) may be required to confirm the presence of HIV (CDC 2009). A window period of 8-12 weeks following infection is put into consideration, therefore a second confirmatory test is done after the window period.

2.4 HIV PREVENTION METHODS AND STRATEGIES

Zimbabwe adopted HIV prevention strategies aiming at reducing or preventing the spread of HIV (NAC 2011:26). Among the interventions employed in Zimbabwe were behaviour change communication, condom promotion, voluntary male circumcision, prevention of mother-to-child transmission of HIV (PMTCT), HIV testing and

counselling, prevention and control of sexual transmitted diseases, blood safety and post exposure prophylaxis (PEP) (NAC 2011:26).

HIV testing and counselling is one of the preventive strategies rolled out nationally. The strategy plays a vital role in HIV prevention as it enables people to know their HIV status, thereby enabling them to seek early treatment and practice safe sexual behaviours (NAC 2011:31).

The Prevention of Mother to Child Transmission of HIV (PMTCT) is major prevention strategy adopted aiming at preventing the vertical transmission of HIV from mother to child (Ministry of Health and Child Welfare 2009b:9). This is achieved through administration of a course of antiretroviral drugs given to HIV positive women during pregnancy and during labour as well as their newborns (Avert 2013b:1).

Blood safety is one of the most effective strategies for preventing HIV transmission. HIV thrives in human blood therefore thorough screening of all blood and blood products and use of sterile needles and syringes is mandatory (NAC 2011:36).

Correct and consistent use of condoms is one of the HIV prevention methods (NAC 2011:28). Male circumcision is also an important element of HIV prevention. Studies have shown that male circumcision can reduce the probability of HIV infection in an HIV negative male by 60% (NAC 2011:30). The strategy was taken positively in Zimbabwe where 700 men requested to be circumcised within two weeks of the government starting the roll out of voluntary medical male circumcision (VMMC) services for HIV prevention (Avert 2013a:1).

Social and behaviour change communication is key to adopting HIV prevention strategies (NAC 2011:26). The strategy includes comprehensive sex education involving training in life skills, information on how to practise safe sex and negotiating healthy sexual relationships is an essential part of HIV prevention (NAC 2011:26).

Post exposure prophylaxis (PEP) is a special course of HIV treatment prescribed to people who have been exposed to the virus. The course is administered with an aim of preventing the exposed person to HIV infection, therefore it is administered soon after

one has been exposed to the infection and this mainly occurs at work or through sexual abuse (NAC 2011:37).

2.5 HIV TREATMENT

There is no cure for HIV and AIDS. Although a variety of therapies such as bone marrow transplantation, lymphocyte transfusions, thymic transplantation and therapeutic aphaeresis were tried to remove the virus they were not successful and are no longer employed (Klaat 2013:47). In the absence of cure, antiretroviral treatment is the only option that offers a dramatic reduction of the virus in an infected individual (Wekesa 2007:1). The aim of antiretroviral treatment is to reduce the amount of HIV in the body to a point where it is no longer possible to detect in the blood as it diminishes viral replication thereby reducing destruction of the immune system (Klaat 2013:48; WHO 2006:24). CD4 cell count is frequently checked for all patients on ART to assess the viral load as this is the most important indicator of response to ART (HSS Panel on Antiretroviral Guidelines for Adults & Adolescents 2013:26).

There are many kinds of antiretroviral drugs that attack the virus in different ways and for this reason the treatment entails use of combination of antiretroviral drugs and taking a combination of two or more antiHIV drugs is referred to as Highly Active Antiretroviral Therapy (Avert 2012:1). However, these antiretroviral drugs can only reduce the viral load as they stop virus multiplication therefore do not completely eliminate the HIV virus from the infected person (Klaat 2013:48). The most commonly used drug combination given to those beginning treatment consists of two Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTI) with either a Non-Nucleoside Reverse Transcriptase Inhibitors (NNRTIs) and a boosted protease inhibitor (Avert 2012:1). HIV copies its own genetic code into the cell DNA when it enters the body. NNRTIs contain several medicines that aim to control the amount of virus in the body by preventing replication of the virus by primarily blocking HIV-1 replication (Sluis-Cremer & Tachedjian 2008:1). A combination of drugs that a person is given at the beginning is called first line therapy, then if HIV becomes resistant to this combination then a change to second line therapy is recommended (Avert 2012:1). A combination of first line drugs may include Tenofovir, Disoproxil Fumarate and Lamuvidine or Emitricitabine (WHO 2013:30). Some of the common side effects that may occur from these ARVs include severe skin reactions, convulsions, liver damage, central nervous system toxicity such as abnormal dreams,

depression or mental confusion (WHO 2013:139). Antiretroviral drugs have different side-effects and these may have an impact on how the patients take the drugs (WHO 2006:24).

In some countries several ARVs are combined in a single dose tablet, fixed dose combination (FDC) which ensures that a patient takes multiple doses together which is more convenient for the patient.

2.6 OVERVIEW OF THE ART PROGRAMME

HIV and AIDS is one of the leading cause of deaths in Sub-Saharan Africa (WHO, UNICEF, UNAIDS 2011:2). In response, Sub-Saharan Africa, being the region most affected by the epidemic had the greatest increase in the absolute number of people receiving treatment in 2010 where a total of 3 911 000 were reported in December 2009 and the number rose to about 5 064 000 in 2010 (WHO,UNICEF,UNAIDS 2011:97). Twenty countries in Sub-Saharan Africa accounted for 84% of the people receiving ART in 2010 (WHO, UNICEF, UNAIDS 2011:97) and countries in Southern Africa being the worst affected. South Africa had the greatest absolute number of people living with HIV and due to rapid ART scale up the country managed to provide antiretroviral therapy to almost one fifth of all people receiving ART (WHO, UNICEF,UNAIDS 2011:98). In terms of percentage, Zimbabwe recorded the highest rise in enrolment, with an increase of almost 50% in the number of people receiving treatment between December 2009 and December 2010 (WHO, UNICEF, UNAIDS 2011:98).

Globally ART coverage increased tremendously in 2011, where 8 million people were reached with ART services, a 20 fold increase since 2003 (UNAIDS 2012a:50). The issue of concern now is how to maintain high rate of adherence. It was observed that most patients discontinued ART mostly during the first year of starting therapy (WHO, UNICEF & UNAIDS 2011:89) and patient's retention rate decreased as the period of treatment increased. In 2010, WHO, UNICEF and UNAIDS (2011:85) reported global retention rates of 81% occurring within 12 months after initiation of treatment, 75% after 24 months and 67% after 60 months.

Zimbabwe was among the countries in Southern Africa worst affected by HIV and AIDS epidemic, however, due to intensive preventive strategies HIV prevalence declined from 23.7% in 2001 to 18.4% in 2005 and 13.1% in 2011 (UNAIDS 2012b:9). This was also coupled with the increase in ART treatment coverage which rose from 55% in 2010 to 79% in December 2011 after adoption of WHO revised guidelines on eligibility criteria (UNAIDS 2012b:31). Although success was noted in scaling up of antiretroviral treatment, the challenge remains on how to improve and maintain high adherence levels among all these people on ART in order to attain successful treatment.

In an effort to improve access and adherence to ART, WHO launched a Treatment 2.0 initiative to be implemented in resource limited countries with designed priority areas and goals for 2020 which included optimising drug regimens, reducing costs of drugs, providing access to point of care, adopting delivery systems and mobilising communities (WHO, UNICEF & UNAIDS 2011:91).

2.7 MEASUREMENT OF ART ADHERENCE

Assessment of adherence levels is measured through using various methods. However, adherence measurement methods are known to be complex as there is no golden standard by which to measure adherence because each methodology has its own advantages and disadvantages (Nozaki, Dube, Kakimoto, Yamada & Simpungwee 2011:7), therefore use of a combination of many methods is recommended. The most commonly used methods include patients report of missing pills, pharmacy refill records, various self-reporting tools (such as questionnaires and visual analogue scales), measurement of assay levels and electronic drug monitors (WHO 2006:27; Chesney 2012:1). Self-report is the most frequently used measure of adherence to ART because it is simple and inexpensive (Nozaki et al 2011:7) but there is need to ensure that interviews are done in a relaxed atmosphere where patients feel free to report a non-adherent event. Although self-report of adherence sometimes tends to overestimate adherence the measure remains the most useful method for the assessment of ART adherence because of it allows simple reporting of all doses missed during the past 3 days or past week (HSS Panel on Antiretroviral Guidelines for Adults & Adolescents 2013:182). Further if a patients report suboptimal adherence this is taken as a strong indicator of non-adherence.

2.8 BENEFITS OF ANTIRETROVIRAL THERAPY

Introduction of ART services came as a relief to PLHIV as it improved their quality of life as well as reducing morbidity and mortality (WHO, UNICEF & UNAIDS 2011:3). It has been proved that people living with HIV who have access to antiretroviral drugs and the care needed to maintain therapy can live for many years with what is now considered to be a complicated but manageable chronic disease (WHO 2006:24). Globally, in low and middle income countries 2.5 million deaths have been averted since 2005 (WHO, UNAIDS & UNICEF 2011:3), with the majority of the averted deaths in Sub-Saharan Africa. It was also proved that half of the people with a CD4 cell of below 350 would be expected to die if they did not get antiretroviral treatment (UNAIDS 2012b:50). Some of the major benefits realised through the ART treatment were reduction of risk of sexual transmission of HIV virus as the viral load is decreased, many people who were on home based care were ambulant and returned to work, parents stay alive longer thereby delaying the time when children become orphans (Mbirimtengerenji, Jere, Lengu & Maluwa 2013:17). However, these benefits can only be realised only if strict adherence to ART is maintained where a high adherence of over 95% is required to suppress HIV replication, meaning that missing more than one dose of a regimen per week may be enough to cause treatment failure (Chesney 2012:1). Sustaining this lifelong treatment remains a challenge and became even more complicated after introduction of Highly Active Antiretroviral Therapy (HAART) because of the complexity of the drug regimens (Chesney 2012:1).

2.9 FACTORS THAT INFLUENCE ADHERENCE TO ART

Identification of principal factors contributing adherence to ART treatment ensures appropriate implementation of strategies and measures to improve adherence even prior to initiation of ART treatment. HSS Panel on Antiretroviral Guidelines for Adults and Adolescents (2013:182) also recommended provision of appropriate resources and strategies that would help a patient to achieve and maintain good adherence such as prescription of regimens that are simple to take, dealing with patients psychosocial needs, learning needs and availability of a multidisciplinary trusting health care team even before treatment is initiated. Some of the factors that influenced adherence identified in Zimbabwe were implementation of the task shifting policy, training more

health workers on ART, reducing waiting hours and provision of ART related costs (NAC 2011:38).

From the literature review it is clear that factors that influence a patient's ability to adhere are multiple and complex, hence need to explore them and come up with strategies that promotes adherence to ART. The factors will be discussed in four categories and these entail factors related to the individual/patient, drug regimen factors, socio-cultural factors and service delivery related factors.

2.9.1 Patient-related factors

Prior to commencement on ART there are certain requirements that should be assessed to ensure patients readiness to take medication, as it is necessary to identify and deal with factors that may limit adherence to ART (HSS Panel on Antiretroviral Guidelines for Adults & Adolescents 2013:182). Adherence facilitators pertaining to patient include individualising treatment plan, increased knowledge on adherence, counselling sessions, missing appointments, housing, age, forgetfulness and reminders, competing priorities, literacy level, food, alcohol abuse, depression, counselling, provision of ART related costs, marital status, religion, improvement in the general status of health and short waiting time.

Involving patients in making the treatment plan ensures better adherence. A patient centred approach which entailed individualising treatment plan with the involvement of the patient in decision making, continuous assessment of adherence factors and tailoring adherence interventions to suit the individual was seen as a cornerstone to ART adherence (HSS Panel on Antiretrviral Guidelines for Adults & Adolescents 2013:183).

Continuous assessment of adherence at every clinic visit may help identify reasons why patients sometimes failed to adhere to treatment scheduled times and sometimes miss appointments. A study conducted in Uganda which assessed adherence levels revealed that those who missed appointments had travelled and also some of the main reasons identified for missing doses were due to forgetfulness, work conflict and felt unwell (Shumba, Atuhaire, Imakit, Atukunda & Memiah 2013:2). Transport challenges were cited as one of the main barriers to adherence because when patients failed to reach

ART clinics for their pharmacy refills they also miss clinic appointments and are likely to miss their doses as well if they did not have enough supply (Shumba et al 2013:4).

As a strategy to improve adherence Ministry of Health and Child Welfare (2011:32) recommended monitoring of ART adherence and identification of early warning signs for possible drug reaction. The strategy entailed monitoring percentage of ART patients picking up prescribed ARV on time and percentage of ART patients attending all clinic appointments on time (Ministry of Health and Child Welfare 2011:32). This ensured timely follow up on those who missed appointments.

Assessment of housing and home situation was found to be critical prior to commencement of ART as unstable housing is associated with missing appointments and loss to follow up. A study conducted by Mendelsohn, Schilperooid, Spregel and Ross (2012:6) revealed that ART adherence was disturbed in conflict areas where patients were not able to access ART health facilities, hence this resulted in them missing their appointments and some were lost to follow-up.

Age of a person is another factor that influenced adherence to ART. According to Nyambura (2009:54) ART adherence was seen to increase with increasing age and decreased as the age advances beyond 60 years. With the young population ART adherence was mostly affected by stigma and denial, whilst with the elderly senile dementia influenced their understanding on adherence issues therefore had challenges in following ART instructions (Nyambura 2009 :54).

Forgetfulness was identified as a major contributing factor to non-adherence, as such reminders such as use of mobile phone text messages, cell phones, alarm clocks or watches, and calls from health care providers were among some of the methods used to improve adherence (Marukutira 2012:70). However, due to competing priorities (such as childcare, housing chores, work), some patients ignored reminders and some resorted to setting second reminders (Huang, Sangthong, Meilvel, Chongruvivatwong, Zheing & Yang 2012:6). Huang et al (2012:6) further reported some patients who ignored phone message reminders from health workers as they preferred to communicate with them and obtain more information regarding their treatment. A study in Zambia showed that use of a watch (245, 47% of respondents), use of clock (79, 15% of respondents) as the most frequently reported ways to remember when to take ARVs

and 49 respondents (10%) reported using the position of the sun to remember when to take ARVs (Nozaki et al 2011:4). Maokisa (2011:23) study also showed that 69.4% of the patients used clock/cell phone alarms as reminders to ARVs, and it was a very convenient way as most people owned a mobile phone for communication.

A study conducted in Vietnam by Do (2011:130) showed marginally significant association between lower education level and non-adherence, p=0.06. However, recommendations were made not to ignore these individuals, but establish strategies to accommodate these few individuals who have difficult in reading and understanding medical instructions.

Failure to secure enough food contributed to non-adherence to ART. Good nutrition is required by patients on ART to enable them to mount an effective immune response, hence the need to provide patients on ART with the necessary food requirements so as to promote adherence (NAC 2011:39). Lack of food contributed to low ART adherence particularly during the initial stages of ART when the body needs extra nutrition (WHO 2006:9). Failure to secure enough food forced some patients to take their medicines once a day in the evening instead of twice because that was the only time they got food (WHO 2006:9). Furthermore, NAC (2011:39) reported that the high mortality which occurred during the first 90 days of ART treatment was found to be associated with failure to get good nutrition.

Alcohol abuse, difficulties in integrating HAART to one's lifestyle, and psycho-emotional issues such as depression and hopelessness, or lacking the will to live with HIV were some of the factors that affected patient's adherence to ART treatment (Chizanga 2010:155, Chesney 2012:1, Do 2011:132, Shumba et al 2012:3, Maokisa 2011:7). Although directly observed therapy (DOT) was seen as an effective strategy used in provision of ART to drug active users, the strategy was seen to be unsustainable (HSS Panel on Antiretroviral Guidelines for Adults & Adolescents 2012:182).

Providing information to the patients about their condition and treatment is critical to enable patients to have informed decisions about their treatment (Nunes, Nelson, O'Flynn, Calvert, Kuntze, Smithson, Benson, Blair, Bouser, Clyne, Crome, Hemingway, Home, Johnson, Kelly, Packham, Patel & Steel 2009:9). Series of adherence counselling sessions which offer information to patients about their condition, treatment,

significant side-effects, and what to do if side-effects occur, what to do if they miss a dose and how to get further supply were identified as important factors that influenced patients adherence to ART (Nunes et al 2009:11). Mendelsohn et al (2012:82) also identified quality counselling from trained counsellors as a key requirement for successful ARV adherence. A study by Maokisa (2011:35) also revealed continuous education as one of factors that promoted adherence.

Chance health locus of control was also found out to be significantly associated with non-adherence (Do 2011:153). Implication of this finding suggested that health education and counselling given to HIV/AIDS patients should emphasise the harm the belief that chance or luck determines patient's health outcomes, as this belief may negatively influence their adherent behaviour (Do 2011:153).

Sometimes adherence is related to challenges faced by individuals in obtaining adequate resources required to enable them to adhere to the required treatment prescriptions (Nunes et al 2009:1). Therefore provision of other ART treatment related costs was found as an essential factor that contributed to ART adherence. Even though ARVs are supplied free at government hospitals, as they are sponsored by The Global Fund to Fight AIDS, TB and Malaria and United States Emergency Plan for AIDS Relief (WHO, UNICEF,UNAIDS 2011:98), it was found that some patients could not afford other costs such as transport costs, clinic fees and other hidden costs (Bemelmans, Akker, Ford, Phillips, Zacharia, Hamer, Schoouten, Hermann, Mwagomba & Massaqoui 2010:6, Maokisa 2011:32). WHO (2006:13) also identified hidden costs such as lost wages due to frequent clinic visits, clinic registration, user fees at private health facilities and long waiting hours as some factors that needed to be addressed so as to promote adherence.

Masculinity was seen to interfere with married women's adherence to ART. A study done in Zimbabwe revealed that most men denied being associated with HIV as they wanted to protect their manhood and they viewed HIV and AIDS as a threat to masculinity and to them being ill belittles their sense of manhood (Skovdal et al 2011b:3). Furthermore, some men when they discovered that their wives were on ART, they denied them permission to take their drugs or sometimes steal their drugs for their own treatment (Skovdal et al 2011b:2). Such actions consequently affected women's

adherence to ART as they failed to get the supportive treatment required and ended up taking their medication secretly.

Religion plays an important role in influencing ART adherence levels although sometimes negative influences from the religious sector were identified, as such during adherence counselling sessions addressed religious beliefs and practices that may hinder adherence to ART (Maokisa 2011:32). A study by Mbirimtengerenji et al (2013:20) revealed that Christians adhered better to ART than any other religions. In the same study Mbirimtengerenji et al (2013:21) also noted non adherence in some strong religious believers who believed that God has supernatural powers and healed HIV and AIDS therefore discontinued treatment.

A study by Mbirimtengerenji et al (2013:21) revealed that patients who were self employed or had their own businesses adhered better than those who were formally employed because they were self-governed on the time they go for refill whist the formally employed may sometimes miss appointments when they were denied the time off by their employers to go for their monthly refills.

ART adherence requires one to adhere to the schedules but in some instances this might not be possible. Do (2011:149) cited factors such as being too busy, special events changing daily schedule, travel and oversleeping among others as factors that prevented PLHIV from taking their ARVs.

Patients on ART who noted improvement of their general health status were motivated to keep all the appointments and not to miss a dose as they could see that ART made a difference in their quality of life (Mbirimtengerenji et al 2013:24; Maokisa 2011:35).

2.9.2 Service delivery factors

Quality service delivery provided by a multidisciplinary health team influenced adherence to ART as the services were delivered in the context of a comprehensive care that addressed medical, social and emotional needs of PLHIV (Campbell, Scott, Madanhire, Nyamukapa & Gregson 2011:1). Some of the service delivery factors that promoted ART adherence identified by Campbell et al (2011:1) were provision of adequate manpower, accessible ART clinics, motivated health workers, removal of user

fees, good nurse patient relationship, maintaining a regular health service provider increases adherence and short waiting time.

Adequate manpower ensures quality service delivery. Engagement of adequate health workers, adoption of strategies that improves service delivery and availing services to the poor and underserved communities were some of the factors that improved adherence to ART (WHO, UNICEF, UNAIDS 2011:94). An out-of-clinic model of care piloted in Tete province, Mozambique promoted adherence, as it involved some patients in collection of ARVs from ART centres on behalf of other patients, then distributed the ARVs to their fellows, monitored adherence levels among themselves and offered each other support for adherence (Decroo, Telfer, Biot, Maiker, Dezebro, Gumba, Dores, Chu & Ford 2011:1). The model also helped to decongest the clinics, increased adherence, reduced transport costs and reduced loss to follow up as there was close monitoring of adherence among the patients themselves (Decroo et al 2011:4).

Some of the ART services that are too far from the users of services may not be user friendly thereby making it impossible for some patients to meet their monthly appointments. Therefore bringing ART clinics to accessible points ensures access, reduces transport costs, promotes adherence and ensures adequate monitoring (WHO, UNICEF, UNAIDS 2011:90). A study conducted in Vietnam revealed that people who had easy access to ART clinics, that is a distance of less than 10km to clinic, were more adherent compared to those living more than 10 km from the clinic (Do 2011:132). Those who stayed far sometimes had to borrow money to cover their transport costs, and even when they had the money they sometimes failed to get transport from their rural homes to the health facility thereby forcing them to miss appointments (Campbell et al 2011:5). Similar findings were reported by Charurat, Oyengunie, Benjamin and Habib (2010:5). Nozaki et al (2011:6) mentioned that patients who spent long hours travelling to treatment facilities incurring expensive travel costs had increased risk of non-adherence.

A task shifting model of care that was developed and implemented in Thyolo which entails assigning of tasks such as ART refills and adherence counselling tasks to less specialised health workers proved to be effective in decongesting ART clinics and in making ART clinics more accessible to the community (Bemelmans et al 2010:6).

Bemelmans et al (2010:7) further indicated that as a way of attaining maximum adherence to ART, models of ART support must be elaborated at community level so as to ensure that ART care is made to fit into peoples' lives, rather than requiring people to fit their lives around ART.

Good relationship between patient and health care provider facilitates optimal adherence. ART being a complex treatment require patients to be involved in their treatment decisions which entail cordial relationship and open discussions between patients and health care providers, focussing mainly on exploring patients decisions about the treatment support adherence required (Nunes et al 2009:6). Chizanga (2010:164) also reported that patients cope better with their illnesses and adhere more to ART if there is an existing friendly and trusting relationship between patients and health care providers enables. Campbell et al (2011:5) study also identified a friendly atmosphere displayed by nurses which entails shaking hands, which is a culturally accepted way of greeting, taking time to know more about the patients' lives by listening to patients problems and addressing patients religious beliefs as some of factors that facilitated adherence to ART. The same study revealed that patients appreciated interest shown by staff as they tried to know fully their lives by closely interacting with them during every clinic visit (Campbell et al 2011:5). As HIV is now classified as a chronic condition where patients frequently visited the ART clinics some patients preferred to maintain a regular health provider since they would have developed close relationships with particular health care providers (Marukutira 2012:66).

However poor relationships were reported when misunderstandings arose on the quantity of supply of ARVs where patients identified good nurses as those who prescribed several months of pills at a time and a bad nurse as one who prescribes pills for only one month or less (Campbell et al 2011:5).

Patients are less likely to miss appointments if they are attended to within a reasonable time. Maokisa (2011:30) study revealed that patients who experienced long waiting hours were discouraged from going to the clinics for their monthly reviews and refill. Waiting for long hours is stressful and sometimes it can be worsened by poor interpersonal communication between patients and health care providers, where patients were sometimes asked to sit down on the floor when benches were all occupied (Campbell et al 2011:5).

2.9.3 Factors related to medication

Medication related factors that promote adherence entails prescription of regimens that are simple to take, with minimal side-effects, medication with no food restrictions and prevention of drug stock outs. Among some of the factors that were seen to influence adherence were issues related to size of pill, number of pills, side-effects, food restrictions as well as dosing times had a negative influence on adherence (Marukutira 2012:75). In addition to the number of pills, antiretroviral treatment users are expected to take their doses at the same regular intervals for life and follow dietary requirements which might not be an easy task.

Patients adhere better to medications with low incidence or less side-effects, regimens that are simple to take, have a low pill burden and low frequency dosing (HSS Panel Antiretroviral Guidelines for Adults & Adolescents 2013:182). Side-effects from antiretroviral medication were one of the most common factors that contributed to non-adherence to treatment (Do 2011:139). When patients experienced side-effects some skipped their doses whilst some completely stopped treatment despite the fact they were given relevant information about the discomfort (Maokisa 2011:9). Some of the reported side-effects included vomiting, swollen legs, increased heart rate, nausea, anaemia, headache, skin rashes and dizziness (WHO 2006:11). It was also noted that additional medications taken for symptomatic relief such as TB drugs, Cotrimoxazole, cough remedies and other medications used for symptomatic relief further added to the pill burden (Nyambura 2009:60).

Reports of Adverse drug reaction reports from Medicines Control Authority of Zimbabwe (MCAZ), a body which monitors safety of drugs, indicated that majority (94%) of the reports were drug reactions due to ARVs, about 42% were due to one drug, Stavudine toxicity (Ministry of Health and Child Welfare 2009a:67). In response WHO recommended phasing out the use of Stavudine because of its long term toxicity and side-effects and it was substituted with a less toxic drug (WHO, UNICEF & UNAIDS 2011:112).

Uninterrupted supply of ARVs contributes to ART adherence. A study done in Zambian rural areas revealed that non adherence was strongly associated with stock outs of

ARVs, and some patients were pressured to share ARVs with a family member or a friend until the other person secures his/her supply (Nozaki et al 2011:6). This created another problem as the other person would quickly run out of supply and this adversely affected adherence level (Nozaki et al 2011:6), hence need to ensure an uninterrupted supply of ARVs so as to minimise the emergency of drug resistance and promote adherence. As a strategy to prevent drug stock outs WHO recommended a set of harmonised monitoring and evaluation indicators to be monitored for procurement and supply of antiretroviral drugs ((WHO, UNICEF & UNAIDS 2011:105). Zimbabwe was among the countries that conducted a pilot test on drug procurement and management and the results demonstrated that procurement and supply management indicators, if monitored well can increase the performance of national procurement and supply management system (WHO, UNICEF & UNAIDS 2011:108), thereby promoting adherence. Furthermore, timely supply of ARVs was also ensured by monitoring the indicator on the percentage of health facilities dispensing ARVs that experienced a main pharmacy stock out of at least one required ARV in the last 12 months (Ministry of Health and Child Welfare 2011:30).

2.9.4 Socio-cultural factors

Family and community support, disclosure of one's HIV positive status and cultural issues plays a vital role in adherence to ART. Support from the community proved to enhance adherence to ART and also helped in retention as revealed in a study conducted in Tete, Mozambique that engaged community ART groups in ART distribution and monitoring (WHO, UNICEF & UNAIDS 2011:96). Also peer support and self-help groups (known as Friend help Friend) were found to be very effective in helping PLHIV to access ART and adhere to the regimen (Do 2011:108).

A study done in Botswana showed that most adolescents who had a good adherence had support from family (siblings, parents, grandmothers, aunties and caregivers), friends and the society (Marukutira 2012:50). Community caregivers also played a vital role in adherence support for people on ART as is the practise in Zimbabwe where secondary caregivers within the Community and Home Based Care (C & HBC) programme provide adherence support and sometimes assist to collect ARV medicines from hospital on behalf of clients (Ministry of Health and Child Welfare 2009b:14).

Studies have shown that patient cultural beliefs about illness and the efficacy of the treatment regimen affect adherence. The way people make sense of illness is partly culturally determined and it influences a person's beliefs to treatment and ethnicity and culture were seen to sometimes have constructive or destructive roles for promotion of adherence (Wasti et al 2011:5). A study done in Nepal revealed that cultural factors, individual beliefs and perceptions about health and seeking treatment affected ART adherence as HIV/AIDS was perceived as a bad persons disease (Wasti et al 2011:39). As such, Wasti et al (2011:44) recommended modification of the ARV treatment plan to fit within the patients cultural beliefs and practices, implement a patient centred approach, as it was seen that no one magic bullet helped all ARV patients adhere to prescribed regimens.

A major socio-cultural factor which facilitates adherence of antiretroviral treatment is disclosure of one's status as HIV positive and stigma (Do 2011:151). A study conducted by Skovdal et al (2011b:1) revealed that HIV stigma and discrimination is still present in communities and families despite the positive advantages of antiretroviral treatment therefore recommended need to encourage one to be open about the HIV positive status. Most participants who failed to adhere to treatment missed their doses as they had not disclosed their HIV positive status due to fear of being stigmatised (Marukutira 2012:66). Nyambura's (2010:55) study revealed that some women failed to disclose their HIV positive status and that they were taking ARVs as they feared being victimised and accused of infidelity or fear that they may be divorced by their husbands. To avoid going through such traumatic experiences some patients ended up hiding their HIV positive status from colleagues, friends, and relatives, and ended up not adhering to treatment (WHO 2006:10). A study done in Nigeria revealed that good adherence was associated with disclosure of HIV status and engagement of the community in HIV and AIDS care created an environment that reduced stigma and encouraged disclosure to family members (Charurat et al 2010:5).

2.10 THE INFORMATION-MOTIVATION-BEHAVIOUR SKILLS MODEL

Health seeking behaviour is dependent on several models. One of the models is the Information-Motivation-Behavioural skills (IMB) model and this will be reviewed to discuss adherence to antiretroviral treatment. The IBM model of ART assumes that adherence related information and motivation are associated with adherence related

behavioural skills and these skills directly predict adherence to ART (Amico, Barta, Konkle-Parker, Fisher, Cornman, Shuper & Fisher 2011:2). The implication of this model translate to the extent that patients on ARVs if well informed, will be motivated to take action and adopt the required behavioural skills to act effectively (Amico et al 2011:2). Furthermore, Amico et al (2012:2) cited that poor adherence to ART can occur when patients are poorly informed, not motivated to take action or lack the required behavioural skills to act effectively.

Amico et al (2011:2) emphasised the need to disseminate comprehensive and accurate information as the information comprise of one's fund of information about HIV and AIDS infection, medication adherence, potential side-effects and decision rules concerning adherence that may be inaccurate. Poor adherence can also be noted when one feels physically well and decide to skip medication (Amico et al 2011:2). A study done in the Deep South, Mississippi (Amico et al 2011:5) revealed that adherence to ART was not only related to ones fund of information but also incorporated ones behavioural skills. Individual motivation to adhere to treatment regimen plays an important role towards antiretroviral treatment adherence where one is personally and socially motivated and believe that the antiretroviral treatment adherence can improves one's health (Amico et al 2011:2).

The Behavioural skills component of IBM model of adherence to antiretroviral therapy comprises of the specific skills individual must apply to facilitate complex sequence of behaviours that are involved in adherence to antiretroviral therapy and ones sense of efficacy for applying the skills (Amico et al 2011:2). The required skills, among others, entails one's ability to self-administer combination of ARVs, keep accessible, cope with side-effects, stick to prescription schedule, obtain updated information on ART and communicate effectively with health care providers and be able to mobilise social support for ART adherence (Amico et al 2011:2).

2.11 CONCLUSION

HIV is the leading cause of deaths mainly in Sub-Saharan Africa. In this chapter HIV pathology, mode of transmission, HIV prevention methods, ARV treatment and benefits of ART were discussed. Literature review on previous studies done on ART adherence

was discussed. Factors that facilitate adherence identified in the literature review were mainly related to the individual, service delivery, drug regimen and support system.

CHAPTER 3

RESEARCH DESIGN AND METHODS

3.1 INTRODUCTION

This chapter will present the research methods used for the study. Polit and Beck (2012:733) defined methodology as the steps, procedures and strategies for gathering and analysing data in a study. Research design, sampling procedures, data collection process and research analysis approaches applied to address the research questions will be discussed. The first sections addressed issues to do with the study area and setting of the study, sampling procedure followed by data collection and analysis methods. The last section deals with issues related to ethical clearance.

3.2 RESEARCH DESIGN

Yin (2009:24) defined research design as the logic that links data to be collected to the initial questions of study, hence need to identify a suitable design that can answer the research questions. A qualitative study, descriptive phenomenology, was conducted as it was the most suitable design to use when a problem or issue needs to be explored (Creswell 2007:39).The aim of this study was to explore deeply factors that influenced adherence to ART among adult patients attending antiretroviral therapy clinic at Beatrice Road Infectious Disease Hospital (BRIDH). The descriptive phenomenological approach allowed participants to describe their experiences of things as they experienced them and these include hearing, seeing, believing, feeling, remembering, deciding, evaluating and acting (Polit & Beck 2012:495). By using the qualitative design the researcher was able to explore and understand the meaning of individuals ascribed to their social or human problem (Creswell 2009:4). In addition, through face to face interviews, the researcher was able to gather multiple realities based on the actual words of participants as they narrated the dynamic experiences of them being HIV positive and experiences of taking ARVs (Creswell 2007:18).

3.3 STUDY POPULATION

Population is the entire set of individuals or objects having the same characteristic (Polit & Beck 2012: 738). The study population was HIV positive adult patients on ART coming for review at BRIDH. The hospital serves people from its surrounding suburbs in Harare.

The decision to choose this institute was based on the fact that the hospital caters for a high number of people on treatment for HIV and AIDS within the suburbs of Harare City. An estimate of about 150-200 patients are seen at the clinic on a daily basis from Monday to Friday from 7.00 hours to 16.00 hours.

3.4 DESCRIPTION OF STUDY SITE

The study was carried out at Beatrice Road Infectious Disease Hospital (BRIDH) in Harare. The hospital is a public health institution owned by City of Harare. It was established in 1921 and it is situated in Mbare high density suburbs along Simon Mazorodze Road.

The opportunistic infection and antiretroviral therapy (OI & ART) clinic was established at this hospital in 2006. Since then the hospital has been offering ART services to adults including adolescents. A separate clinic for adolescents was established after a realisation that the unique needs of children aged between 12-17 years were not addressed at the adult clinic (Gamanya, Mujaji & Nzou 2011:2) Opening of a separate clinic for adolescents allowed the adolescents to share their experiences and air their concerns in a free environment without adults. Paediatric ART services were also introduced in 2009.

The hospital is an initiating centre where patients are commenced on ART, then referred to peripheral clinics for monthly review and refills. However, those who default treatment are referred back to this hospital for re-assessment by a medical practitioner. Also those who are commenced on second line therapy due to treatment failure continue to get their medication at the hospital.

The hospital has a CD4 testing machine and a laboratory making it easier for patients to have all the necessary investigations under one roof. Patients on ART from peripheral clinics are referred to this hospital for CD4 count check. It is also a referral centre for patients with infectious diseases. It offers other services such as X-rays, TB clinic, dental therapy and has medical examination centre. All the patients received ARVs free of charge from the hospital pharmacy which is funded by The Global Fund and some of it from National Aids Council (NAC). There is a social welfare department where the social worker attends to patients with socio-economic problems. Some patients who genuinely fail to meet the treatment costs are referred to the social welfare department and assisted with free treatment order. Furthermore the ART clinic is attached to a non-governmental organisation (food programme) that supports the patients on ART with food hampers and cash. However the food ration is given to only those who meet the eligibility criteria which is based on nutritional screening and only underweight clients on ART are eligible to food handouts. Periodic nutritional assessments are done, and if the patient's nutritional status improves the food ration is terminated.

During the monthly reviews health education sessions on HIV and AIDS, antiretroviral treatment and adherence are conducted to patients. The interaction also offers opportunity for temporary support group meeting where patients share their experiences on adherence, share testimonies and have devotional prayers which address their spiritual needs. It also serves as an opportunity for questions and answer session where patients concerns are addressed. During health education session the idea of prioritising daily schedules and giving first priority to clinic appointments was emphasised by the counsellor. The counsellor also reassured patients that even if there was an emergency such as a family death they should come for their review first and staff will save them first, then proceed to the funeral with their medication.

Before patients are initiated on ART they undergo at least three counselling sessions on different days. The first counselling session is mainly basic counselling where patients are given basic information on HIV and AIDS, self-stigma, acceptance of being HIV positive, issues related to disclosure and other basic issues. The second and third sessions focus mainly on adherence issues; importance of adhering to ARVs, the consequences of not adhering, enabling factors, giving information on ARVs, names of ARVs, how they work, side-effects and assessment of readiness to start ART. During the subsequent counselling sessions the topics are repeated so as to reinforce

knowledge, recapitulation is done with participants and patients are allowed time for questions and answers.

More adherence counselling sessions are offered to the patients basing on their adherence status during their monthly review visits. The main purpose of the monthly reviews is to assess adherence levels and to find out whether patients need more information and support. Furthermore the patients undergo relevant investigations such as CD4 count which is done to determine if one should be commenced on ART, in accordance with WHO guidelines (CD4 count of 350 and below). In the absence of CD4 count patients are assessed using WHO staging which is based on clinical symptoms.

3.5 SAMPLING

The participants were identified through purposeful homogenous sampling. Qualitative research entails purposefully selecting participants or sites that will best help the researcher understand the research problem and answer the research question (Creswell 2009:178). In this study, the aim was not to generalise findings to a target population but aimed to discover meanings, explore and explain events as close as possible to the people who had experienced the phenomena or culture that is under study (Polit & Beck 2012:515).

3.5.1 Sampling procedure

Purposive sampling approach was used. Polit and Beck (2012:517) described purposeful sampling as a strategy that allows researchers to select participants that most benefitted the study because they had rich data as they experienced the phenomena under study. The purposive sampling approach was used because it enabled the researcher to purposefully select participants that most benefitted the study, with the assistance of a nurse counsellor, who had an established relationship of trust with patients receiving treatment at the hospital. However, the researcher still emphasised the issue of voluntary participation.

Participants were recruited when they came to the clinic for their monthly reviews. Since BRIDH is an initiating site patients who came for review were mainly those coming for CD4 cell count check, those referred back to see doctor for any problems such as

severe side-effects, on second line therapy, failing to adhere and those who needed change of drug regimen.

3.5.2 Ethical issues related to sampling

Although the purposeful sampling approach was used the researcher respected ethical issues where the criteria for sampling was still based on the willingness of patients to participate in the study and still emphasised that participation was entirely voluntary (Polit & Beck 2012:157).

3.5.3 Inclusion and exclusion criteria

Sampling was based on the eligibility criteria of the patient having been on ART for more than six months, above 18 years and is willing to participate.

Inclusion criteria

The inclusion criteria was based on recruiting HIV positive patients on ART aged 18 years and above attending ART clinic at BRIDH with the following characteristics:

- Confirmed HIV positive diagnosis
- Currently taking ARV treatment
- Has been taking ARV treatment for at least six months
- Able to provide informed consent

Eligible patients with informed consent were recruited and their anonymity maintained.

Exclusion criteria

People with the following characteristics were excluded from participating in the study:

- HIV and AIDS patients not currently on ART
- Patients below 18 years
- Patients not consented to participate in the study

3.6 DATA COLLECTION

Data collection was conducted at the hospital (BRIDH) between August and September 2013.

3.6.1 Data collection approach and method

The researcher conducted face-to-face interviews with the participants using a semi-structured interview guide and at the same time took detailed notes of the conversations (Annex 5 and 6). As note taking sometimes disrupts the researchers, and sometimes tend to be incomplete and biased by interviewers memory and personal views, the researcher decided to audio tape the conversations as well to ensure that interview data were participants actual verbatim responses (Polit & Beck 2012:534).

3.6.2 Characteristics of data collection instrument

The data collection tool used was a semi-structured interview guide. The tool was also translated from English to vernacular language (Shona) to allow the researcher to express clearly the questions to the participants in the language they mostly understood (Annex 5 and 6) Notes were taken and a quality audio tape was used to record the conversations.

3.6.3 Data collection process

Data collection was conducted at the hospital and every effort was made to ensure that respondents felt comfortable. Patients were recruited when they came to the clinic for reviews. Polit and Beck (2012:533) posed the need for qualitative researchers to gain and maintain a high level of trust with the participants and “be like them” as this will allow them to get rich data. During the data collection period the researcher on a daily basis joined the patients as they all first assembled in a hall awaiting reviews and hold devotional prayers which were followed by health education sessions from the counsellor. The counsellor, who was acquainted with the patients, introduced the researcher to the patients while they were still gathered as a group in the hall so as to enable the researcher gain trust from the participants. In turn, the researcher was given the opportunity to address the patients as a group and explained the purpose of study

and asked those who were willing to participate (voluntarily) to see the researcher at a private room for more details about the research.

Face to face in-depth interviews were conducted with the participants who volunteered to participate. The researcher ensured that the interview process was done according to the study protocol which included introductions, explaining purpose of study, what it entailed to participate and obtaining written consent before the interviews. The interviews captured information on socio-demographic characteristics, knowledge of HIV and ART, duration on ART, perceived benefits of ART, adherence facilitators, costs, accessibility of ART site, side-effects, disclosure, social and family support, and quality of health delivery. Face to face interviews allowed the researcher to adapt the questions as necessary and ensured that the questions were properly understood by repeating or rephrasing the question. Furthermore, the researcher was able to observe the participant facial expression or body language which in turn gave the researcher a clearer indication of the participants' true honest feelings or emotions. However, face to face interviews may sometimes be biased as participants tend to give social desirable answers and some may feel uneasy about answering personal questions (Joubert & Ehrlich 2007:108).

In this study ART adherence was measured by patients self-report of missing doses and missing appointments. Participants were asked to recall if they missed a dose or fail to adhere to the scheduled dosing time in the last three days, previous week, then previous month or any other time when he or she missed doses or appointments. Participants were also asked if they recall missing an appointment over the past three months or any other time.

Data was collected until saturation occurred. Data saturation occurs when sampling is done up to a point at which no information is obtained and redundancy achieved (Creswell 2007:64; Polit & Beck 2012:521). In this study, although an estimated sample size of 15 participants was given, 20 patients were interviewed as the researcher had to collect data until saturation occurred.

Open-ended questions were used as they allowed the participants to express freely their experiences of taking ART and at the same time the researcher was able to probe participants' answers. Interviews were carried out in a relaxed atmosphere where

participants were able to narrate their stories in their own words. Sometimes in-depth interviews may not necessarily follow the sequence of asking questions as they appear in the interview guide as each point can be the beginning of a particular discussion (Joubert & Ehrlich 2007:320). In this study the researcher noted that the questions were not asked in order as they appear in the semi-structured guide as some questions which were later on the list were already answered as participants narrated their full stories. Data was captured by taking detailed notes of the conversations and audio recording to those who consented to audio tape. Participants who had issues or problems and needed help were referred back to counsellors.

3.6.4 Ethical issues related to data collection

With studies involving human beings as study participants, the researcher must exercise care and ensure that their rights are protected (Polit & Beck 2012:150). The researcher respected all the ethical issues pertaining to the study.

3.6.4.1 Study permissions

Permission to conduct the study was initially sought and granted from the Department of Health Studies, UNISA Research Ethics Committee (Annex 1). Permission to conduct study at the study site (BRIDH) was sought and granted from the Director of Health Services of Harare City Health Department after the Institutional Review Board scrutinised the proposal and gave their permission as well (Annex 2, 3 and 4). Furthermore, permission was also sought and granted from the Medical Research Council of Zimbabwe (MRCZ) which is a controlling body that regulates all medical research in Zimbabwe (Annex 11 and 12).

3.6.4.2 Informed consent, confidentiality, anonymity and privacy

Informed consent entails that the participants are given adequate information about the research, understand it, and can consent or decline participation (Polit & Beck 2012:157). The researcher was given the opportunity to explain to the entire group the purpose of the study, what it entails to participate and emphasised that participation was voluntary. The researcher gave details on a one to one basis and explained what it entails to participate and the contents of the consent form to those who were willing to

participate. A clear explanation was given to participants about the purpose of the study. Anonymity issues were also explained that no names would appear on data collected but only codes will be used. Confidentiality issues were also mentioned that no one would have access to the information and that the information would not be shared with anyone except the supervisors. Participants who consented to participate were asked to sign consent forms before the interviews. Also consent was sought from participants to audio tape the conversations and they were asked to sign consent forms for audio taping. Consent forms were translated to vernacular language (Shona) to ensure that the patients fully understood the contents of the consent form and they were given copies of the consent forms. Contact details of the researcher and the supervisor were disclosed to participants. All the participants interviewed were literate (able to read and write) therefore it was easier for them to read, understand the contents of the consent forms and to put their signatures (Annex 7, 8, 9 and 10). Participants did not incur any financial expenses as they had come for their monthly reviews.

3.6.4.3 Right to withdraw

Participants were also told about their right to withdraw at any time and that it would not jeopardise their treatment. However, audio-taping was not done to those who were not comfortable with audio tapes.

3.6.4.4 Risks and discomfort

Participants did not encounter any risk. However due to the nature of in-depth interviews the researcher had already made arrangements with the counsellor to refer those who may have emotional disturbances but fortunately none of them experienced any discomfort.

3.7 TRUSTWORTHINESS OF THE STUDY

Creswell (2007:207) states that a qualitative researcher should personally be involved in every step of the research process, researcher need to go out and find the “truth” and ensure prolonged engagement in the field in order to understand the social reality of the participants. The researcher personally went out in the field, adhered to techniques for collecting data, was well versed about the character of the data, data analysis and reported true findings.

3.7.1 Credibility of the study

The researcher created a good rapport with the participants, interacted with the participants and had enough time to collect thorough, rich data. Data collection instrument was translated to vernacular language (Shona) and this ensured that questions were asked in a language that the participants understood. There was no language barrier as the researcher was well conversant with the participants' language. Multiple field visits were conducted and data was collected until saturation occurred. An accurate analysis and truthful reporting of findings was maintained by the researcher.

3.7.2 Dependability

Polit and Beck (2012:585) defined dependability as the stability or reliability of data over time and conditions. In this study the researcher took detailed field notes and audio taped the conversations, then transcribed audio tapes and cross checked with the information captured on the field notes. However, interpretation and approach to the study may be influenced by the researcher's past experiences, biases and prejudices (Creswell 2007:208). In this study the researcher set aside stories and past experiences.

3.7.3 Member checking

The researcher played back the audio tape at the end of each interview to confirm if the conversations were captured and also to confirm that the information was what the participants wanted to report.

3.7.4 Transferability

Transferability refers to the extent to which findings can be transferred in other settings or groups (Polit & Beck 2012:585). The data collected comprised of rich and detailed descriptions obtained from the participants and also the findings, interpretations and conclusions were supported by data. The detailed descriptions will enable the readers to assess whether the findings can be transferred or not and they will also consider the characteristics shared by the participants and the study site as well since this was an urban setting. However, since study participants were drawn from BRIDH's catchment

areas which were mainly urban suburbs some of the findings may not be transferrable to rural settings.

3.8 DATA ANALYSIS

The purpose of data analysis is to organise, provide structure and elicit meaning from the data (Polit & Beck 2012:556). The tapes were played several times, then verbatim transcribed to text and the information was stored electronically in Microsoft word. Information from field notes were cross checked with verbatim responses of the participants and also stored electronically. The researcher read through the transcripts several times so as to get an understanding of the responses from the participant and to search for common themes. Thematic analysis method described in Polit and Beck (2012:562) was used to analyse data. The method was the most suitable as it relies on the similarity principle which entailed looking for units of information with similar content, symbols or meaning and the contrast principle which involved finding out how content or symbols differ from other content or symbol then identified what was distinctive about emerging themes or categories (Polit & Beck 2012:562). In contrast to quantitative research, qualitative research deals with words rather than numbers where the researcher looked for explanations from the person who had experienced the phenomena.

DeSantis and Ugarriza in Polit and Beck (2012:562) defined a theme as an abstract that entity that brings meaning and identity to a current experience and its variant manifestation. By using the thematic analysis the researcher ensured that less bias was introduced as themes were produced from the results of the research and were not invented by the researcher. The researcher grouped the results by themes. Validation of the themes was done to ensure that themes accurately represented the perspective of the participants.

3.9 CONCLUSION

Research design, sampling procedures, data collection process and research analysis approaches utilised in this study were described. Ethical issues were also discussed.

CHAPTER 4

RESEARCH RESULTS AND DISCUSSIONS

4.1 INTRODUCTION

This chapter summarises the research findings of the study basing on the participants responses from the in-depth interviews conducted by the researcher during the data collection period. Twenty (20) participants aged between 28-58 years were interviewed and among them were thirteen (13) females and seven (7) males. The participants had been taking ARVs for a period range of between 6 months to 9 years. The interviews were focussed on answering the following research question:

> "What are the various facilitators regarding ART adherence from the patients perspective".

4.2 RESEARCH RESULTS

The study focussed mainly on exploring factors influencing adherence to ART that were experienced by the participants and also identified factors within the patient's treatment, socio-cultural and service delivery context. Responses from participants revealed that, patients on ART, being the drivers of the programme showed that most facilitators to ART adherence revolved around the individual. Findings from Nunes et al (2009:56) indicated that patient's decisions about taking medicines are made within the patient's own frame of reference and make sense within the patients understanding. As the researcher explored adherence factors some non-adherence factors also came out from the responses.

Basing on the issues that arose from the participants responses the researcher identified five themes that influenced adherence to antiretroviral among adult patients attending antiretroviral therapy clinic at Beatrice Infectious Disease Hospital (BRIDH). The identified themes were knowledge on HIV and AIDS and ART, motivation to live, adherence support networks, good service delivery and factors related to medication.

The themes were further broken down into sub-themes and sub-themes into categories. An overlap of categories that emerged from the themes was also identified. Table 4.1 gives a summary of themes, categories and sub-categories identified.

Table 4.1: Summary of themes, categories and sub-categories

Themes	Categories	Sub-categories
Theme 1: Knowledge on HIV/AIDS and ART	• Health education sessions • Counselling sessions	• Knowledge on HIV and AIDS • Knowledge on ART and ART adherence • Knowledge on ART side-effects
Theme 2: Motivation to live	• Improved health • Innovations to adhering to ART treatment	• Perceived benefits of ART • Adhering to appointments date • Use of cell phone alarms • Carrying extra doses of ARVs • Use of meal times • Making own treatment plan • Adjusting social life to fit into ARV treatment
Theme 3: Adherence support networks	• Social support • Psychological/emotional • Spiritual support • Economic support	• Support from family and relatives • Peer support groups • Support through counselling • Support from church • Disclosure, discrimination and self-stigma • Dealing with depression, stress and isolation • Support with income generating projects • Support with health-related costs and making ARVs affordable • Assistance with food • Employment
Theme 4: Good service delivery	• Good interpersonal relationships • Efficient services at institution	• Good relationship with health care providers • Short waiting time • Easy access to ART clinics • Comprehensive services offered
Theme 5: Factors related to medication	• Continuous drug supply • Pill administration	• Uninterrupted supply of ARVs • Reduction in number of pills

4.2.1 Theme 1: Knowledge on HIV/AIDS and ART

The first theme that emerged was the knowledge of participants on HIV/AIDS and ART. Theme 1 was categorised into two categories which entail health education and counselling sessions. These played an important role in dissemination of information on HIV and AIDS and ART.

The categories were further broken down into three sub-categories and these were knowledge on HIV and AIDS, knowledge on ARVs and knowledge on ARV side-effects. These will be discussed in detail.

4.2.1.1 Knowledge on HIV/AIDS

Findings from the study revealed that the information participants received empowered them to appreciate ART treatment and make positive decisions towards ART adherence. Through series of counselling and health education sessions participants were equipped with information on the basics of HIV and ART which include mode of transmission, the effect of the virus to the immune system, that there is no cure for AIDS. From the responses below it showed that most of the participants interviewed had adequate knowledge on HIV and AIDS and ART:

> *"We were taught that there is no cure for HIV, once the virus gets into my body it will stay there for life, the only treatment available is ARV drugs".* Male, 55 years.

> *"I know that once someone has HIV the virus will stay in the body for life and I should also prevent myself from getting more virus".* Male, 51years.

> *"Health educations topics we receive in the hall helped me a lot, they reinforce information on HIV and AIDS, ART and we are given chance to ask what we do not understand".* Female, 39 years.

Discussion

Patient knowledge and information about the disease contributed to adherence. The study findings concur with Amico et al (2011:2) which revealed that a good understanding of HIV and AIDS was associated with good adherence. Findings also concur with Ross, Aung, Campell and Ogumbanjo (2011:2) that one's acceptance of being HIV positive and the belief that HIV is treated by ART only led to better adherence to ART.

4.2.1.2 Knowledge on ART and ART adherence

In-depth knowledge on ARVs assisted patients to make a decision of optimal adherence. With respect to information on ARVs, most respondents were quite knowledgeable on the names of the ARVs they were taking, how they work, that it was a lifelong treatment and were quite conversant about the benefits for adhering and the consequences for not adhering. Furthermore, some responses had detailed information about how ARVs work and that the ARVs reduce the viral load and the effects of HIV on CD4 cell count. Below are some of the participants' responses:

> *"ARVs are not a cure, they improve an individual's quality of life, they also prolong life and I know it is a lifelong treatment".* Female, 37-years-old.
>
> *"ARVs have improved quality of life, although I am not sick now I know that I need to take them for life because they are not a cure".* Female, 32-years-old.
>
> *"I came for my CD4 count results, and I am happy that my CD4 count has gone up. Before I started treatment my CD4 count was150 but because I have been taking my ARVs as prescribed my CD4 count is normal".* Male, 55 years.
>
> *"I was not sick but my husband was sick. When I accompanied him here I was also tested for HIV, my result was positive and my CD4 count was very low, then I was also commenced on ARVs".* Female 39 years.

Discussion

Findings from this study concur with Maokisa (2011:35) that continuous education is one of the factors that promote adherence. However it has been found that knowledge levels only do not translate into action as revealed in Amico et al (2011:5) study that information only did not necessarily imply high levels of adherence but also relates to ones fund of behavioural skills.

4.2.1.3 Knowledge on ART side-effects

Giving information to patients about the possible side-effects of ART may increase adherence levels as the patients will be prepared and know what to do if they experience side-effects. If side-effects are not managed well they may interfere with adherence to ART. Possible side-effects that may occur when one is taking ARVs were discussed with patients during counselling sessions and they were also informed that they should come back to see doctor and should not discontinue treatment on their own if they encounter side-effects. Among the common side-effects experienced by study participants were vomiting, rash, abscesses, numbness in lower legs and severe reaction to sulphur. Responses from participants indicated that side-effects experienced by some participants had no interference with their ARV treatment as they were empowered with enough information on what to do and they also had the knowledge that some less severe side-effects would disappear over time.

Timely management of the side-effects was also identified as a factor that facilitated adherence. At the hospital there is always a doctor in attendance who quickly attends to patients who have encountered problems with side-effects. Below are narrations from participants on how they handled side-effects:

> *"Initially I had rash all over the body but I didn't stop my ARVs. We were told that we should come back and see a doctor if there are problems and not to stop treatment on our own, so I came back to see a doctor".* Female, 39-years-old.

”When I started ARVs I had nausea, vomiting, felt sick, it was bad, but I did not stop my pills. I came back to the clinic and had treatment for the side-effects”. Female, 32-years-old.

“I had a severe reaction due to Cotrimaxazole (Allergic to Sulphur), I came back to the clinic and they stopped the Cotrimoxazole”. Female, 39-years-old.

Discussion

Side-effects can make one not to adhere to treatment as some patients discontinued ARV treatment when they experienced severe side-effects (Maokisa 2011:9). Sometimes patients may not have a clear understanding of side-effects and tend to associate any illness that occurs to them whilst on treatment side-effects as side-effects of ARVs. Do (2011:139) also reported side-effects from antiretroviral medication as one of the most common factors that contributed to non-adherence to ART. Contrary, findings from this study revealed that some individuals did not discontinue ARV treatment when they experience severe side-effects as they had adequate information on what to do if they experience side-effects.

4.2.2 Theme 2: Motivation to live

The second theme identified was motivation to live as a facilitator to ART adherence. Two categories were identified in theme 2 and these were improved health and innovations made by the patients themselves to adhere to ART treatment.

Sub categories which entail perceived benefits of ART, adhering to appointment dates, use of cell phone alarms, carrying extra doses of ARVs, use of meal times, making own treatment plan and adjusting social life to fit into ARV treatment were identified as facilitators to ARV adherence. From the participants responses it showed that they valued ARVs as they had tasted the benefits of ARVs therefore gave priority to ART treatment and ensured that they kept appointment dates and adhered to scheduled treatment time. Adhering to scheduled times was noted as a challenge to most participants. As a way to addressing the challenge study participants designed their own convenient times for taking their medication. Use of reminders, making own treatment

plan, adjusting social life to fit into ARV treatment, use of meal times and carrying the pills when one had a journey were some of innovations designed by patients to make them adhere to dosing times.

4.2.2.1 Perceived benefits of ART

The respondents were asked to explain the benefits they have realised since they started the antiretroviral treatment. Findings from the study indicated that participants who had experienced and enjoyed the benefits of ART had good adherence as indicated by some responses below:

> *"ARVs have improved my health, I was very sick in 2007, had pleural effusion and was diagnosed TB, put on TB treatment although no AFBs were seen in the sputum. There was no change until I was tested for HIV and put on ARVs".* Male, 55 years.

> *"ARVs are very helpful. I was very sick, was treated for TB but there was no improvement, then was tested for HIV then was commenced on ARVs. Since then my health has improved. I came here (at this ART clinic) in a wheelbarrow, I could not walk, but after taking ARVs I have noticed a speedy recovery. I had lost weight, my weight was 65kgs, then I reduced to 46 kgs, but look at me now I managed to gain 11 kgs in a few months after commencement of ARV treatment".* Male, 40 years.

> *"I was very sick, I was very thin, I could not walk or do even household chores, but look at me now I now fit and am now back at work".* Female, 47 years.

> *"No, I never miss appointments, because I know the importance of ARVs, and I am well informed about ARVs, I strive to live and I don't want any relapses".* Male, 28 years.

> *Participant 19 "I have really benefitted from ARVs, I had frequent OIs, had chronic diarrhoea, my weight reduced from 80 kgs to 63 kgs, I had Typhoid,*

and so many diseases which I could not understand. But since I started ARVs these have since stopped and I have gained weight again".

"ARVs are very helpful, but they delayed commencing me on ARVs. I had an HIV test in 2011 but they put me on Cotrimoxazole only, then later on when my CD4 count was low that is when they commenced me on ARVs". Male, 40 years.

Discussion

These findings concur with Mbirimtengerenji et al (2013) that patients on ART who noted improvement of their general health status were motivated to adhere to antiretroviral treatment, they keep all the appointments and did not miss a dose as they could see that ART made a difference in their quality of life. The same results were also reported by Ayalu et al (2011) who reported that a change in health status of a client had influence on adherence to ART and if there is improvement in health the influence is positive and a negative influence if there is deterioration in health status.

4.2.2.2 Adhering to appointments date

The consequence of not missing appointments was well understood by study participants as a result of intensive counselling sessions received prior to ART enrolment. At the ART clinic, once a patient has been considered eligible for treatment and commenced on ART, one is required to attend monthly reviews where adherence level is monitored, patient's health status assessed and given monthly supply of antiretroviral drugs. From participants responses below it showed keeping appointment dates enabled them to adhere to their treatment as they would not run short of supply of medication:

"I never missed appointments because I value the pills. They helped me a lot, I don't suffer from any illnesses. ARVs have kept me alive". Female, 38-years-old.

"I never miss an appointment because I want to live. If I don't have money I borrow money to come here, just like now I have borrowed money to come here for my review". Female, 38 years.

"I missed my appointment last month when I went to my rural home and failed to come back for my appointment because my mother was very sick and later on she died, however because counsellor had told us that we can go to nearest clinic I went to the nearest health centre where they supplied me with a week supply to cater for the extra days I was home therefore I did not default my treatment". Male, 51 years.

"No I never missed an appointment, I want to live, I also do not want to miss the health education sessions so I always meet my appointments". Male, 40 years.

"I value the issue of keeping my appointment dates, for instances when there was a death in our family, I first came here to collect my pills before I proceeded to our rural home for burial, and the staff is good also they attended to me first". Male, 43 years.

"No I never miss an appointment because I value this treatment, it has improved my quality of life, my children are still young, I want to see them growing". Female, 34 years.

4.2.2.3 Use of cell phone alarms

Forgetfulness was found as one of the main factors that caused one not to adhere to treatment therefore participants relied mostly on cell phone alarms to help them to maintain their adherence. Use of cell phone alarms was found to be a very convenient reminder as it is portable and served two purposes of communication and to alarm the patient on dosing time. This is indicated from responses below:

"I always set my phone alarm to remind me when it is time to take my pills and this enables me to adhere to the prescribed scheduled times". Female, 32 years.

"I always take my pills as prescribed, I use phone alarm to remind me and my family remind me as well". Male 44 years.

"I never missed a dose, I set my phone alarm. I always carry a few tablets with me if I anticipate delay so that I take my pills on the prescribed time". Male 40 years.

Discussion

Use of cell phone alarms as reminders has also been reported by Marukutira (2012:70) as the most convenient reminders as nowadays most people own cell phone alarms for communication purposes. Marukutira (2012) also identified forgetfulness as a major contributing factor to non-adherence, and patients on ART used reminders such as mobile phone, text messages, cell phones and alarm clocks or watches to improve adherence. This is also supported by Maokisa (2011:23) whose study showed that most patients used clock/cell phone alarms as reminders to ARVs.

However, some participants were not comfortable with alarms when they were at public places or a social gathering as they felt that it could be an embarrassment when it alarms then everyone would be aware of the persons HIV status as indicated by one participant:

"I switch off my cell phone alarm whenever I go to a social gathering because it alerts everyone and this embarrasses me when I try to explain why I set the alarm". Female 34-years-old.

4.2.2.4 Carrying extra doses of ARVs

Carrying extra doses of ARVs enabled patients to adhere to scheduled times and consequently improved adherence levels to ART. As participants noted that change in their daily routine affected adherence to treatment they developed a strategy of moving with extra doses of ARVs wherever they go as stated from the responses below:

"I carry some of my pills in my handbag so that whenever it is the time to take my pills and am away from home I will not skip my dose since most of the time I go out with my handbag". Female, 34-years-old.

"I always carry a few tablets with me in my handbag, sometimes I finish work late or I fail to get transport early, then I take my tablets even at the bus stop". Female, 38-years-old.

"I missed my doses last week when I travelled but now I pack a few pills and go with them wherever I go". Female, 44-years-old.

"I missed a dose in July (a month ago) when I attended an emergence, I took my relative who was sick to hospital and spent the night there so I missed my dose. But now I carry a few pills with me to cater for those unforeseen emergencies". Female, 47-years-old.

Discussion

ART adherence requires one to adhere to the scheduled dosing times but in some instances this might not be possible. Findings concur with Do (2011:149) that factors such as being too busy, special events changing daily schedule, travel and oversleeping among others as factors that prevented PLHIV from taking their ARVs. This is also supported by Jean-Baptiste (2008:16) who cited most common reasons for non-adherence as patients forgetting to take medicine, occupied by other things and client not at home during the scheduled time.

4.2.2.5 Use of meal times

Use of meal times was another factor identified that enabled the participants to adhere to the scheduled dosing times as indicated below:

"My ARVs are part of my daily meals-breakfast and dinner, I follow my meal time, 8 am and 8 pm and this helps me not to miss my dose". Female, 39-years-old.

"I take my pills together with my meals, ARVs are part of the meal". Female, 34-years-old.

4.2.2.6 Making own treatment plan

Change of daily routine sometimes contributed to non-adherence therefore in an effort to counter the problem participants designed their own treatment plan to suit the scheduled times that was often affected by change of daily routine. This was described from participants' responses below:

"I made my treatment plan, I changed it to suit my shift work hours when I am on night duty and day duty. However, I was guided by counsellor that morning dose should be not later than 9am so as to accommodate the evening dose before I go to sleep". Male, 28-years-old.

"Sometimes I forgot to take the doses during the prescribed times when I am at work therefore I worked out my own treatment plan that is convenient to me. I used to take the pills at 8am and 8 pm but have now shifted to 7am and 7 pm to suit my work hours, and since then I have not missed doses". Male, 40-years-old.

Discussion

Responses from participants showed commitment and innovative ideas from the patients themselves as they strive to maintain high adherence levels to their treatment. This concurs with Skovdal et al (2011b:301) that adoption of a patient centred approach which entailed involvement of the patient to make own treatment plan promoted adherence levels. Similar recommendations were made by that ART requires much commitment, involvement in decisions pertaining to their treatment and fully participation from the patient.

4.2.2.7 Adjusting social life to fit into ARV treatment

Alcohol abuse is known to interfere with ARV treatment as one may forget to take the medication or take it wrongly. Changing life style and fitting ART doses into the daily

routine was found to be a contributory factor to ART adherence. Furthermore the study revealed that adherence to ARV treatment depended on ones willingness to adjust and manage own illness. Some participants reported that they stopped taking alcohol completely and some only managed to reduce the consumption and adjusted their social life to fit into ART treatment as indicated from responses below:

> *"I drink alcohol, I was advised to stop, I have not stopped completely, but I have reduced the consumption. I am still trying to stop drinking alcohol because I know that this may affect my treatment".* Male, 43-years-old.
> *"I used to smoke and drink but I stopped when I was commenced on ARVs as I realised that I would not be able to take my ARVs properly if I continued to drink alcohol".* Male, 45-years-old.

Discussion

Findings concur with Chizanga (2010:155), Chesney (2012:1), Do (2011:132), Shumba et al (2013:3) and Maokisa (2011:7) that patients on ART who took alcohol had difficulties in adhering to antiretroviral treatment as they sometimes failed to take their medication at the prescribed dosing times or sometimes omitted the treatment. Although directly observed therapy (DOT) has been seen to be effective in provision of ART to drug active users, the strategy was found to be not sustainable to ARV users as it is a long life treatment (HSS Panel on Antiretroviral Guidelines for Adults & Adolescents 2012:182). However, the issue of giving social desirable answers might have been possible as participants reported that they stopped taking alcohol.In an effort to reduce social desirability Do, Dunne, Kato, Pham and Nguyen (2013) recommended the audio computer assisted self-interview (ACASI) which is a computer method for administering questionnaires.

4.2.3 Theme 3: Adherence support networks

The presence of adherence support networks was the third theme identified as a facilitator to ART adherence. Four categories were identified and these were grouped as social support, psychological/emotional and spiritual support and economic support. The study revealed that a holistic support offered to patients on ART enabled patients to adhere to ART.

From participants responses it showed that support from family members, peers, church and support through counselling sessions enabled them to adhere to their ARV treatment. Some of the other facilitators identified were support given to patients after disclosure, non-discrimination, dealing with depression, stress and non isolation. Support with income generating projects and employment, assistance with food, making ARVs affordable and support with other related costs facilitated adherence to ARV treatment. These sub-categories will be discussed in detail.

4.2.3.1 Support from family, neighbours and relatives

Social support networks entailed support from family, neighbours and relatives and peer support groups.

Support from family members, relatives and friends plays an important role in supporting PLWHA to maintain ART adherence. It was observed that most participants were accompanied by their relatives when they came for their monthly reviews. From participants responses it was noted that good support system from relatives, neighbours, family and friends facilitated their adherence to ART as indicated in the responses below:

> *"My husband is here with me now, he is very supportive. He always accompanies me when I come for my reviews and reminds me to take my pills".* Female, 37-years-old.
>
> *"I disclosed to my wife, she is also HIV positive and on ARVs as well, she is very supportive and we remind each other".* Male 51-years-old.
>
> *"My brother is very supportive, first time when I came here in a wheelbarrow he was the one who accompanied me and stayed with me at my house until I was better. He sometimes gives me money to buy extra food and sends me a text message to remind me to take my pills*". Male, 40-years-old.
>
> *"My husband died last year in June. My children always remind me, they even bring the tablets and a cup of water to make sure that I have taken my*

pills. My neighbour also checks on me almost every day and sometimes help me with house hold chores when I am not well". Female, 34-years-old.

4.2.3.2 Peer support groups

Peer support groups, interaction of patients and testimonies were identified as some of the facilitators to patients' adherence to ART. As patients came for their reviews they first assembled in a hall which seemed to be like a temporary support group where they have prayers and health education talks. In the hall, the patients had an opportunity to interact and had open discussions about their HIV positive status, how they benefitted from ARV treatment, challenges encountered in ARV treatment and also shared their emotional challenges. Furthermore, through testimonies offered in the hall patients had the opportunity to share their experiences and assisted each other to find solutions for challenges faced in maintaining ART adherence:

> *"When we meet in the hall it seems to be a temporary support group to us because we interact and share our experiences and we hear from others how they have overcome challenges faced in ART treatment. Also I appreciate devotional sessions because they are part of counselling and they also address my spiritual needs as well".* Female, 34-years-old.

> *"I appreciate the morning peer interactions, as it is like a support group, we support each other and learn from others through their testimonies how they have managed to adhere to ARV treatment for so many years. The testimonies also help to reduce stigma and I could see that I was not alone".* Male, 28-years-old.

Discussion

Findings concur with Marukira (2012:50) where most adolescents who had support from family, friends and the society reported high levels of adherence. This is also supported by Zuurmond (2008:4) that availability of a strong supportive family and support group meetings for people living with HIV and AIDS increased adherence to ART.

4.2.3.3 Support through counselling

Study findings revealed that series of counselling sessions given to patients and caregivers assisted them to make informed decisions about ART as they were empowered with information. The counselling sessions also provided emotional and psychological support to patients who needed it. Initially all patients undergo a minimum of three counselling sessions before commencement of ARVs, then adherence counselling session offered again to those who fail to adhere. Some caregivers who had accompanied the patients were also engaged in the counselling sessions as among the patients there were some who were too ill to comprehend treatment instructions. Responses below revealed how counselling sessions assisted participants to adhere to ART:

> *"The adherence counselling sessions helped me not to miss my appointments and my doses as well".* Female, 44-years-old.

> *"Counselling sessions helped me more than the pills, I managed to accept my status and to adhere to my treatment. I had so many counselling sessions and they were very helpful. Initially I failed to adhere to my treatment because I was stigmatised by relatives but because I had series of counselling sessions it really helped me to cope with the stressful situation".* Female, 35-years-old.

> *"Counselling sessions have really helped me to reduce my stress and to understand the importance of adhering to my treatment".* Female, 38-years-old.

> *"I got the initial three adherence counselling sessions and when I missed my appointment, then I was referred back to counsellors for adherence counselling".* Female, 47-years-old.

> *"I never miss appointments, because I know the benefits of ARVs, and I am well informed about ARVs, I want to stay alive and I don't want any relapses".* Female, aged 35 years.

Discussion

Counselling played a key role in disseminating information on HIV and AIDS and ARVs. Responses from participants concurs with what was found by Mendelsohn (2012:82) who reported that quality counselling from trained counsellors is a key requirement for successful ARV adherence. Hansanna, Sanchaisuriya, Durham and Sycharean (2013:8) also identified counselling and education as effective interventions towards ART adherence.

4.2.3.4 Support from church

One's religious beliefs can impact negatively or positively on ART adherence. Findings from this study revealed that those who disclosed to church members received support through prayers (spiritual support) and some were assisted with material things from the church as indicated from responses below:

"I disclosed to my fellow church members, and we have a peer support group where I am also involved in counselling my peers. When is fasting period we have agreed that we will fast for only half a day". Female, 37-years-old.

"Some churches now teach about HIV and AIDs and they even support church members on ART with their material needs". Female, 44-years-old.

Discussion

Contrary, findings from this study also revealed that sometimes patients are so desperate that as they searched for alternative ways of curing the virus they were advised by their pastors to stop ARVs completely and believe that the prayers from the church have cured the virus and continuing with medication implies that they lack faith in God. However, the same patients, after noticing relapses in opportunistic infections they came back for recommencement of the ARV treatment as reflected in responses below:

"I have been taking ARVs religiously for two years and I never missed a dose but then when I joined one faith healing churches the pastor asked me to stop ARVs and believe in God that I have been healed. Three months after I had stopped ARVs I became very sick. I came back here, I had sessions of adherence counselling from the counsellor and I was recommenced on treatment. And now I am on second line therapy, I gave my testimony to others that we must not stop ARVs". Male, 45-years-old.

"My church discourages us from taking pills, so I did not disclose to them that I take ARVs, but because I also have faith in the holy water they give me I now use the water to take my ARVs". Male, 55-years-old.

" Some churches against ARVs, I wish if our counsellors can go to these churches and educated these pastors on importance of ARVs". Male, 45-years-old.

Discussion

One of the main challenges noted in this study was that despite good counselling sessions and patients showing commitment to ART it was discouraging to see that some discontinued treatment after negative advice by their pastors. This could be as a result of stress experience by PLWHA which occur from the day they are told they are HIV positive and will be struggling to live with the stress. As a coping mechanism the stress disappeared when one is told that that the virus has been cured when in actual fact the virus will continue to attack CD4 cells if one stops treatment.

It was noted that religious beliefs reversed the gains that had been achieved towards ART adherence at BRIDH. Findings concur with Maokisa (2011:32) that religious beliefs had an influence in ART adherence hence need to address the religious belief and practices during counselling sessions. A study by Mbirimtengerenji et al (2013:20-21) also revealed that most Christians adhered to ART than other religions whilst non-adherence was also noted in some strong religious believers who believed that God had supernatural powers and heals HIV and AIDS and discontinued treatment.

4.2.3.5 Disclosure, discrimination and self-stigma

Disclosure of one's HIV positive status is a significant factor towards ART adherence as it can have either a negative or positive impact towards ART adherence. Patients who disclosed their HIV positive status were able to get the necessary support required to enable them to adhere to ARV treatment. However, for some the decision to disclose was not an easy task as they thought they may end up being stigmatised and discriminated. Also the idea of decentralising ART clinics and transferring patients to local clinics was not welcomed by some participants as they would meet neighbours in the same queue. However, as a way of dealing with this self-stigma at this hospital patients were given options of getting their monthly refills of ARVs at the clinic of their own choice.

The following were participants' responses:

> *"I meet neighbours at the local clinic where I am taking my ARVs, so they will all know that I am HIV positive. But thanks to counsellors they gave me an option to go to any health facility that I was comfortable to go for my monthly reviews".* Male, 28-years-old.

> *"I did not disclose to employer and workmates for fear of being stigmatised".* Female, 34-years-old.

> *"In 2004 when I disclosed my HIV status to my relatives they stigmatised me, my sister did not even want to share a bed with me but now they have changed and they are very supportive".* Female, 35-years-old.

> *"I missed my appointment because I was at work, I am a house maid, initially I did not disclose to my employer for fear of losing my employment but later on when I disclosed I noticed that my employer is very supportive and I have not missed my appointment since then. My employer even allows me to come to my parent's house a day before the appointment date for easy access".* Female, 38-years-old.

Discussion

Similar results were also found in a study done in Nigeria which revealed that good adherence was associated with disclosure of HIV status as they engaged the community in HIV and AIDS care thereby encouraging disclosure and reduced stigma (Charurat et al 2010:5; Ross et al 2011:3). This is also supported by (Skovdal et al 2011:1; Do 2011:1). that ART adherence can be optimised in the contexts where there was openness and acceptance of one's HIV positive status Findings also concur with Marukutira (2012:66) that most participants who did not disclose their HIV positive status due to fear of being stigmatised failed to adhere to treatment. Nyambura (2009:55) study revealed that some women failed to disclose their HIV positive status and that they were taking ARVs as they feared being victimised by their husbands

However, the issues of self-stigma still remains a problem in some patients as they are still not comfortable in revealing their HIV positive status to their neighbours and employers. Similar results reported by Hansana et al (2013:8) where self-stigma resulted in some patients failing to take their medicines in the presence of other people.

4.2.3.6 Dealing with depression, stress and isolation

Dealing with emotional abuse and other social problems that may lead to depression was seen to be a strong facilitator for adherence. Being HIV positive and on ART sometimes precipitates stress and failure to cope with the emotional difficulties may lead to depression and consequently affect ones adherence to ART. Responses from participants revealed that those who were isolated, facing abusive situations and depressed sometimes failed to adhere to the required treatment prescriptions as they were not getting the required support to adhere to ARV treatment:

> *"I stay alone at my home, my children have their own homes and families and only come to take me when I am very sick, but when I am well I will be always alone at home. I will feel lonely and depressed therefore I sometimes forget to take my pills. And there is no one to remind me".* Female, 51-years-old.

"I frequently miss doses, yesterday I forgot to take my dose in the morning because of family problems that are stressing me, my husband deserted me and I got depressed". Female, 34-years-old.

"Last week I missed my evening dose, my husband is very abusive, and even his relatives stigmatise me and they accuse me of bringing HIV in the family. This really disturbs me from taking my ARVs regularly. I missed my two appointments since I started the treatment a year ago because I failed to get bus fare or even the $1 to pay for the clinic card. My husband has money but he is not supporting me. (After a pause)- Who can assist me to stop this abuse from my husband and my in-laws because this is disturbing my treatment?". Female, 32-years-old.

Discussion

From the above responses it shows that there is still a gap in addressing psycho-emotional problems that influences adherence to ART. The findings concur with Jean-Baptiste (2008:17-18) that minimal support and depression were some of the identified psychological factors that contributed to non-adherence. A similar study conducted in Viet Nam also revealed that heavy alcohol use, low social connectedness and depressive symptoms were associated with suboptimal adherence to ART (Do et al 2013:5). Skovdal et al (2011:3) had similar findings where some men were not supportive as they did not want to be associated with HIV, as they perceived HIV and AIDS as a threat to their masculinity and illness would belittle their sense of manhood.

4.2.3.7 Support with income generating projects

Poverty can affect ones adherence to ARV treatment. Participant mentioned that if they are empowered through assistance with income generating projects, they would be economically empowered and be able to earn a living for them and sponsor themselves on all health-related costs.

"Being HIV positive does not mean that I cannot do things for myself, if I am assisted with working capital I can start a chicken project and help myself with food and other necessary items". Female, age 51-years-old.

"I am not employed, if I can be assisted with money to start a project, I will be able to generate money for food and to cover all my treatment costs". Female, 39-years-old.

4.2.3.8 Support with health-related costs and making ARVs affordable

Making affordable treatment costs facilitate adherence as indicated by most patients. ARVs are supplied free of charge at BRIDH but there are some health-related costs such as paying $1.00 for the treatment card. The payment is valid for one week therefore if a patient comes more than once a week the patient will still use the same card without extra payments. Although the clinic fee was affordable to some patients there were a few who indicated that they would like to be assisted with the health-related costs to facilitate their adherence. Responses below indicated that assisting patients with health-related costs improves adherence levels.

"Last month I did not have money to pay for the card so I failed to come for my review on the scheduled date. I was referred for adherence counselling and the counsellor referred me to social welfare where I got a free treatment order so I am exempted from paying the clinic fees". Female, 37-years-old.

"Although I stay very near the clinic, and my home is a walking distance from here, I missed my appointment because I could not afford to pay $1 for the card. But now social worker assisted me to get a free treatment order". Female, 51-years-old.

"We get ARVs free but sometimes we are asked to buy Cotrimoxazole when it is out of stock here, that is when it becomes expensive for us". Female, 39-years-old.

"Cost is reasonable although I buy one of the ARVs (second line therapy drug) that is always out of stock here and it costs between $15-$23 a month to include Cotrimoxazole. I always make that budget a priority because I have realised the benefits of ARVs". Female, 36-years-old.

”Cost is affordable, $1 is affordable, we are given ARVs free, just like BP tablets you look for money to buy Nifedipine, and the $1 is affordable I can even afford to help someone without money to pay for the clinic fees, since it is only $1”, Male, 55-years-old.

”Cost is not affordable $1 for treatment and another $1 for travel costs where do I get the money from, I am not working and my relatives also do not have money even if they wanted to support me. My husband deserted me and I am striving to survive”. Female, 34-years-old.

Discussion

Study findings concur with Bemelmans et al (2010:6), Maokisa (2011:32) that making cost of ARVs affordable and provision of other ART treatment related costs contributed to adherence.

4.2.3.9 Assistance with food

Availability of food promotes adherence. The hospital is attached to a non-governmental organisation (NGO) that provided food to some patients on ART. However the food ration is given only to undernourished patients and also once the patients regains their weight the food ration is discontinued. Responses from participants clearly indicated that it was difficult for them to secure enough food and needed to be assisted with food as indicated below:

“The pills require one to eat but securing enough food is a problem. Here they give food to malnourished people only, if possible can we have more food donors so that we can all benefit from the food ration”. Male, 51-years-old.

“There is an NGO that gives us food, it is helping me a lot but the problem is if I gain weight they will discontinue the food handouts, then because I cannot afford food, it becomes a problem again because I will lose weight again”. Female, 37-years-old.

Findings also revealed that integration of the nutrition programme and ART programme promoted adherence as patients would not miss their appointment dates as they also want to collect their monthly food ration. Study findings concur with Campbella et al (2012:129) that poor nutrition remained a barrier to ART adherence and still need to be addressed.

4.2.3.10 Employment

The study revealed that participants who are self-employed had no problems in keeping appointments than those who are formally employed. Those who were formally employed faced challenges in meeting the review dates as they wanted to minimise the frequency of absenteeism at work, hence were suggesting a supply of up to 3 months. Patients are given monthly reviews and sometimes only a maximum of up to 2 months drug supply so as to constantly monitor adherence. It was also noted that patients who did not disclose their HIV status to their employer found it very difficult to ask for time off from work to go for their monthly reviews. Below were some of the participants' responses:

> *"I have never missed my appointments. I do a self-job therefore I manage my own time. I have no hustles in trying to get permission from employer."* Male, 44-years-old.

> *"It is difficult for me to ask for permission from my employer every month to come for the reviews, since I did not disclose him he would become suspicious now because I excuse myself from work every month and almost same dates. If possible can we have three months' supply".* Female, 34-years-old.

Discussion

Study findings concur with Mbirimtengerenji et al (2013:21) that patients who were self-employed or had their own businesses adhered better than those who are formally employed as they had no hustles in trying to obtain permission from their employers.

4.2.4 Theme 4: Good service delivery

The fourth theme that emerged was good service delivery offered by the health workers at BRIDH. Theme 4 was further categorised into two categories and these entail good interpersonal relationship between hospital staff and patients and efficient service delivery at the institution.

Good relationship with health care providers, short waiting time, easy access to ART clinics, decentralisation of ART clinics and availability of comprehensive services offered at the hospital were some of the facilitators to ART adherence.

4.2.4.1 Good relationship with health care providers

A good interpersonal relationship between patients and health care providers was found to be a strong facilitator to ART adherence. Study participants reported that good adequate attention and the cordial relationship they had with the hospital staff boosted their morale and were motivated to come for their appointments on the scheduled dates. Most of the respondents said that they felt easy to have an open discussion with health staff at BRIDH and they also have trust in the health workers. Excerpts of the views of the respondents are recorded below:

> *"The staff here is very friendly, they explain well and direct you to various departments in a friendly manner. The problem is at the clinics where they transfer us, there is poor service, if it was possible I would prefer to come here for my reviews".* Female, 35-years-old.

> *"I wish I can continue taking my pills at this hospital. Counsellors are very good, they treat us with respect and all the staff at this hospital is very supportive. They give comprehensive information about all what you need to know about ARV treatment".* Female, 37-years-old.

> *"All the hospital staff is courteous and they listen to us and are accommodative. I came late but they served me in a friendly manner. The*

problem is at the local clinics where they refer us sometimes I feel like defaulting". Male, 40-years-old.

"There is good reception from all the hospital staff. The other name of this hospital Nazareth, which is a true reflection of Nazareth where Jesus healed sick people as we are also treated well here". Female, 47-years-old.

"Counsellors are very good, supportive and very encouraging, if possible can the clinic staff be attached to this hospital and be taught about good counselling. I even suggest that the salary for all the workers here be increased. Health education sessions are very helpful and they allow us ask questions freely where we do not understand". Male, 45-years-old.

Discussion

Similar findings were found in a study by Chizanga (2010:164), Do et al (2013:5), Ross et al (2011:4) that friendly and trusting relationship between patients and health care providers enabled patients to cope with their illnesses and also it encouraged patients to adhere to ARV treatment. Findings also concur with Campell et al (2011:5) that a friendly atmosphere displayed by nurses which entailed greeting, listening to patients problems and addressing patient's religious beliefs, were some of factors that facilitated adherence to ART.

4.2.4.2 Short waiting time

Findings from this study indicated that service delivery was good as patients were served within a reasonable time. If patients are attendant early they always keep their appointments as long waiting hours sometimes frustrates patient thereby forcing them to miss their appointments. Below are participant's responses:

"At this hospital there are no problems, the problems are at these periphery clinics where there is poor service, we are served late and we queue as early as 5 am. There is slow service at the clinic such that I sometimes think of defaulting". Male, 45-years-old.

"There is good filling system which makes it easy to retrieve our files, we just write the file number and within no time our files are retrieved. There is enough staff, all the departments are covered and the service is quick". Male, 40-years-old.

Discussion

Patients are less likely to miss appointments if they are attended to within a reasonable time. Maokisa (2011:30) study revealed that patients who experienced long waiting hours were discouraged from going to the clinics for their monthly reviews and refill. This is also supported by Campbell et al (2011:5) that patients experienced stress when they waited for long hours.

4.2.4.3 Easy access to ART clinics

Easy access to ART centres and affordable transport costs promotes adherence. ART centres were decentralised to enable patients to easily get their monthly refills from their local ART clinics without incurring any travel costs. Findings from this study indicated that participants had no problems in accessing the ART clinic. Being an urban area the participants had easy access to public commuter buses at an affordable cost and all were coming from within a radius of 10 kilometres.

"This hospital is not far from my home, it is very accessible, only 5 km from my home, and now they transferred me to my local clinic which is a walking distance". Female, 51-years-old.

"There are no problems with transport, its urban area, the cost is affordable, only $0.50 one way, then $1 for the card. The only problem is how to get food". Female, 47-years-old.

Discussion

Availability of transport and transport costs were found not to be an issue as the ART clinic was easily accessible. Patients who had easy access to ART clinics were more adherent than those who spent long hours travelling to treatment facilities (Do

2011:132; Charurat et al 2010:5; Shumba et al 2013:4). A study done in Zambia had similar findings where distance to ART services and travel expenses were barriers to optimal adherence to ART (Nozaki et al 2011:6).

4.2.4.4 Comprehensive services offered

The hospital offers various services required by patients on ART therefore they preferred to get their refills at the hospital. The services include testing and counselling, ART adherence counselling, CD4 cell count check, social welfare, food facility, pharmacy and a doctor who is always in attendance. Study participants indicated that a one stop shop where all services are provided at one place promotes adherence:

> *"I prefer this hospital because it is one stop shop; you get counsellors, doctors, pills, CD4 count tested at the same place and this encourages me to take my medication".* Male, 55-years-old.

> *"This hospital is a one stop shop, all the services are available inside this gate, we get all the services here, starting from HIV test, counselling, CD4 count test, review by doctor, and drug refill".* Female, 34-years-old.

Study findings indicated good service delivery which was appreciated by most participants as they kept their appointment dates thereby increasing their adherence levels. The stress for waiting for long hours waiting for other services was also found to be worsened by failure by the facility to offer all services (Campbell et al 2011).

4.2.5 Theme 5: Factors related to medication

The fifth theme that was identified entails factors that are related to medication. Continuous drug supply of ARVs and pill administration were the two categories identified in theme 5. These will be discussed in detail as they are further sub categorised.

4.2.5.1 Uninterrupted supply of ARVs

The hospital has managed to maintain a regular supply of ARVs for the patients. The patients are also supplied with extra three day supply of ARVs at each clinic visit to enable them to maintain high adherence levels as they never run out of supply of ARVs. The extra three day supply of ARVs enable them to cater for unforeseen emergencies that may occur before the patient comes back for the monthly refill as indicated from responses below:

> *"This hospital has never run short of ARVs, every time when I come I always get my supply of ARVs except for Cotrimoxazole which we are asked to buy".* Female, 37-years-old.

> *"I missed my appointment last month after I travelled to my rural home when my wife urgently told me that our daughter was sick. However I managed to come back two days after the appointment date but I did not miss any dose since I had extra doses".* Male, 47-years-old.

Discussion

A study done in Zambian rural areas revealed that non adherence was strongly associated with stock outs of ARVs, and some patients were pressured to share ARVs with a family member or a friend until the other person secures his/her supply (Nozaki et al 2011:6). This was also supported by Posse et al (2008:95) that interruption of supply of ART due to financial constraints contributed to ART non adherence.

4.2.5.2 Reduction in number of pills

ARVs are taken on a daily basis and are a lifelong treatment that needs commitment from the individual. Taking too many pills on a daily basis was identified as a factor that may contribute to non-adherence as reported by participants:

> *"The pills too many, can there be an injection to replace pills. I suggest that instead of taking tablets every day, they give us a monthly injection".* Female, 34-years-old.

"The pills are too many, find a cure taking ARVs for life is not easy, can they introduce one fixed dose tablet". Male, 28-years-old.

Discussion

Pill burden was mentioned as one of the factors that may contribute to low adherence levels hence participants preferred a monthly injection or a fixed dose tablet. The findings of this study are consistent with those of Marukutira (2012:63) that pill burden and dosing times affected adherence levels.

4.3 MOST PERCEIVED PROBLEMS AND POSSIBLE SOLUTIONS

When participants were asked about the most perceived problem and possible solutions they had different views on possible solutions to improve ART adherence. The most perceived problem indicated by most of the participants was lack of food. Other problems identified were too frequent review dates, pill burden, failure to adhere to scheduled times, domestic violence and stigma interfering with adherence. Possible solutions suggested by participants were giving patients three months' supply of ARVs at each visit, assisting patients with food, find a tablet or an injection that can be taken once a month, protection from domestic violence and stigma whilst one is on treatment, not to be transferred unconditionally to other health centres and conduct health education sessions on ART adherence to churches.

4.4 CONCLUSION

Findings from the study were discussed in this chapter. Five main themes emerged from the responses from participants and these were mainly related to patients' knowledge levels, motivation to live, adherence support networks, service delivery and drug regimen factors. Discussions compared findings from this study with previous studies. Generally it was noted that many factors pertaining to service delivery that contributed to poor adherence revealed in most researches were not a problem at Beatrice Road Infectious Disease Hospital as some of them had been addressed.

CHAPTER 5

SUMMARY OF RESEARCH FINDINGS, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter presents a summary and interpretation of the research findings, recommendations, limitations of the study and conclusion. The study explored various factors that influenced adherence to ART among adult HIV positive patients attending antiretroviral therapy clinic at BRIDH. Findings from the study will be used to improve the ART programme thereby ensuring that patients on ART will fully enjoy the benefits of ART if they maintain high levels of adherence.

5.2 RESEARCH DESIGN AND METHOD

A qualitative study, with a descriptive phenomenological approach was used as it allowed participants to describe their experiences of the things they experienced in taking ART. Homogenous purposeful sampling method was used to identify suitable respondents basing on the inclusion criteria. Ethical considerations were respected and the researcher conducted face to face interviews with participants who volunteered to participate. The researcher also took notes and audio taped the conversations after obtaining consent from the participants. Twenty participants aged between 28 years and 58 years, who had been on ART for a period of six months to nine years were interviewed.

Data was analysed using the thematic analysis method described in Polit and Beck (2012:562).

5.3 SUMMARY AND INTERPRETATION OF THE RESEARCH FINDINGS

Study findings identified factors that influenced adherence to ART at BRIDH. Five themes emerged and these were mainly related to patients' knowledge levels on HIV

and AIDS and ART, motivation to live, adherence support, service delivery and factors related to medication.

5.3.1 Patients knowledge levels

Participants were quiet knowledgeable about HIV basics and the role of ART, therefore the knowledge they had enabled them to maintain high levels of adherence. If a patient has full knowledge about disease condition and also well informed about how the drugs works they are likely to adhere better than those who are not informed. Those who had knowledge about the possible side-effects that can occur when one is taking ART maintained their adherence as they did not discontinue treatment when the side-effects occurred. Counselling played an important role in dissemination of information towards ART adherence. However, sometimes knowledge does not translate into action as evidenced by some patients who temporarily discontinued treatment after being ill advised by religious people.

5.3.2 Motivation to live

This theme identified factors that enabled patients to maintain high levels of adherence to ART. Participants who had enjoyed the benefits of ART were quite motivated to maintain high adherence levels by ensuring that they kept appointment dates and adhered to scheduled treatment times. Furthermore some even designed innovations that would make them to adhere such as making own treatment plan, adjusting social life to fit into ARV treatment, making use of meal times as reminders, use of cell phone alarms and carrying extra pills with them always.

5.3.3 Adherence support

Adherence support was the third theme identified that facilitated adherence to ART. Patients who were fully supported physically, psychologically, socially, emotionally and spiritually maintained high adherence levels. Social support networks which entail family, neighbours, relatives and peer support groups played a vital role in encouraging patients to adhere to their antiretroviral treatment. Support with food, health-related costs which entail availing ARVs free or making cost affordable and supporting PLHIV with income generating projects were some of the adherence facilitators identified.

Patients who were self-employed adhered better than those formally employed as they had no hustles in trying to obtain permission from their employers.

However, the study revealed that participants, who were depressed, stressed, isolated, and had not disclosed their HIV positive status failed to adhere to their treatment as they were not getting the necessary support to adhere to ARV treatment. Some patients were not comfortable with decentralisation of the ART clinic as this would indirectly reveal their HIV positive status to their neighbours.

5.3.4 Good service delivery

Good services offered by health workers played an important role in ART adherence. Responses from participants indicated that they related well with the hospital staff, they were served within a reasonable time frame, the ART clinic was easily accessible and the comprehensive care services at the hospital enabled them to get all the services required when one is on ARV treatment.

5.3.5 Factors related to medication

There were no drug stock out experienced at the ART clinic therefore the continuous supply coupled with dispensing extra three day supply of ARVs to patients during every clinic visit to cater for unforeseen emergencies prevented interrupted supply of ARVs to patients hence promoted their adherence to ART treatment.

5.4 RECOMMENDATIONS

Recommendations were based on the challenges expressed by participants in making them adhere to the long life antiretroviral therapy.

5.4.1 Recommendations to Harare City Health Department management

5.4.1.1 Availability of food

Most participants indicated that securing enough food was a challenge therefore needed to be assisted with food. To curb this problem there is need to source for more

donors that can assist with food to patients on ART who are unable to secure food for themselves irrespective of their nutritional status. It is also recommended that assistance with income for self-projects will help PLHWA to generate income that would enable them to cater for costs such as transport and other health costs.

5.4.1.2 Self stigma

Self-stigma is still a challenge with some patients on ART. Whilst decentralisation of ART clinics was welcomed by some patients, as it solved the problem of accessibility to ART clinics, the concept was not welcomed by some patients. Therefore there is need to consult patients first and make them decide the local clinic of their preference instead of making irrational decisions of transferring them to the nearest health centre.

5.4.1.3 Service delivery at periphery centres

Most participants indicated that there was very good service delivery at the initiating centre (BRIDH), however poor service delivery was identified at the periphery (local) clinic where patients were referred for their monthly supply. In view of that there is need for Harare City Health Management to identify closely and try to address the challenges occurring at these ART clinics.

5.4.2 Recommendations to Ministry of Health

5.4.2.1 Pill burden

Participants' responses indicated that it was not easy for them to remember to swallow pills on a daily basis and to follow the prescribed schedules, therefore recommended to programme planners to come up with a monthly injection or find a cure for HIV.

5.4.2.2 Verbal abuse/domestic violence

Some participants indicated that verbal abuse and domestic violence impacted negatively on their adherence. Therefore there is need to enforce law that protect them from the verbal abuse from their relatives and spouses.

5.4.2.3 Target churches on adherence

From participants responses it came out that some churches and pastors are reversing the achievements so far towards ART adherence. There is need to intensify health education on HIV and AIDS and stress on importance of ART adherence to church leaders.

5.4.2.4 Stigma and discrimination at work

Despite HIV work related policies that were introduced at workplaces it came out that patients on ART were still experiencing work related stigma and this affected their adherence to ARV treatment. Therefore there is need to ensure that the HIV policy is enforced and respected at every work institution.

5.5 LIMITATIONS OF THE STUDY

Selection bias may have occurred due to the nature of non-probability studies which uses the purposive sampling method to select study participants.

Due to the nature of face to face interviews there may be likely to be bias as some participants would give social desirable responses. Recall bias could also occur as participants were asked to recall when they missed doses or missed appointments.

Some participants were not comfortable with audio recording as they indicated that the devices make them nervous and this would negatively affect their responses.

Private rooms were not always available therefore the researcher had to wait for a long period until the room was available and some patients were not able to wait as they were in a hurry to back to work or to home to do other household chores.

5.6 FURTHER RESEARCH

The study focussed only on patients who came for their monthly review leaving out those who had discontinued treatment. Therefore there is need to follow up lost to follow up and conduct a research on why these patients decided to stop the treatment.

The study was also done in an urban setting with fewer challenges therefore there is need to conduct similar studies in rural areas especially the underserved communities.

5.7 CONCLUSION OF THE STUDY

This study explored factors contributing to ART adherence among adult patients attending antiretroviral therapy clinic at Beatrice Road Infectious Disease Hospital. Factors that influence adherence to ART identified in this study were grouped into five common themes and these were knowledge on HIV and AIDS and ART, motivation to live, adherence support networks, good service delivery and factors related to medication.

A quote from Osterburg and Blaschke (2005:487) says “Drugs do not work to patients who do not take them” hence need to ensure strict adherence to the prescribed treatment.

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ANNEXES

Annex 1: UNISA Ethical Clearance Certificate

UNISA university of south africa

UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE

HSHDC/138/2013

Date: 6 February 2013 Student No: 4718-855-3

Project Title: Factors contributing to adherence of ART among HIV adult attending an antiretroviral therapy clinic in Zimbabwe.

Researcher: Gloria Nkomo

Degree: Masters in Public Health Code: DLMPH95

Supervisor: Ms Mosalo
Qualification: Masters in Nursing
Joint Supervisor: Prof GB Thupayagale-Tshweneagae

DECISION OF COMMITTEE

Approved [√] **Conditionally Approved** [ ]

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

Dr MM Moleki
ACTING ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRIES

Annex 2: Letter to City of Harare requesting for permission to conduct study

1451 Silcox Avenue

Houghton Park

Harare

Zimbabwe

Contact: nkomo.gloria63@gmail.com

Phone: +263772867771

25 June 2013

Attention: The Director of Health Services
Harare Municipality
Rowan Martin Building

Dear Sir,

Re: Permission to conduct research interviews at Beatrice Road Infectious Disease Hospital (BRIDH)

My name is Gloria Nkomo, a Master in Public Health student from University of South Africa. I am kindly asking for permission to conduct an in depth study to explore factors that influence adherence to antiretroviral therapy among HIV and AIDS adult patients attending ART clinic at BRIDH. I would like to, with your permission, go to the centre to interview clients on ART.

Voluntary informed verbal and written consent for participation will be obtained and participants will be asked to sign individual consent forms. Interviews will be conducted in a private room at the hospital where no one else can hear the conversation or at any convenient place agreed upon with the participant. Participants will be also assured of confidentiality of information and informed of the right to withdraw at any time and assured that non participation would not affect their treatment. Permission will be also sought to tape record the interviews and to take notes and assurance given that the information will be used for study purposes only. Fictitious names will be used and participants will be asked not to mention people's names during the discussions. The

tapes and notes will be kept under lock and key. No identifying information will be collected and if negative comments regarding the institution will be made I will share that as well before publishing findings of the study.

It is anticipated that findings from this study will assist patients on ART and communities to adopt behaviours that promote adherence and also ART programme planners would adopt policies that promote adherence to ART.

Proposed dates for conducting the study are dates between 1st July 2013 and 14 August 2013.
I would be very glad to share the collated results in the form of a final report with you.

Ethical clearance was provided by University of South Africa (UNISA). Should you have any queries please do not hesitate to contact my supervisor Ms A. Mosalo on +27124296447 or email, mosala@unisa.ac.za.

Yours Faithfully,
Gloria Nkomo (UNISA student number- 47188553).

Annex 3: Permission to conduct study at Beatrice Road Infectious Disease Hospital

CITY OF HARARE

Director of Health Services

DR STANLEY MUNGOFA
MD (Cuba) MPH (Zim)

All correspondence to be addressed to the
DIRECTOR OF HEALTH SERVICES

DIRECTOR OF HEALTH SERVICES
Rowan Martin Building,
Civic Centre,
Pennefather Avenue,
off Rotten Row,
Harare, Zimbabwe.

P.O. Box 596
Telephone: 753326
753330/1/2
Fax: (263-4) 752093

Ref: ----------

Your Ref: ----------

01 July 2013

Gloria Nkomo
1451 Silcox Avenue
Houghton Park
HARARE

Dear Madam

RE: PERMISSION TO CARRY OUT A STUDY TO EXPLORE FACTORS THAT INFLUENCE ADHERENCE TO ANTI-RETROVIRAL THERAPY AMONG HIV AND AIDS ADULT PATIENTS ATTEDNING ART CLINIC AT BRIDH

I acknowledge receipt of your letter dated 25 June in connection with the above.

Permission is granted to carry out the study at Beatrice Road Infectious Diseases Hospital.

You will be required to pay USD50.00 administration fee prior to commencement of the study. The fee is payable to City Health Department, 6th floor, Rowan Martin Building.

Please be also advised that it is our institutional policy that written permission should be sought from the department prior to any presentation or publication of research findings.

For further assistance please liaise with the Hospital Matron.

Yours faithfully

DIRECTOR OF HEALTH SERVICES
PNM/rm
PNM

c.c. Ethics Committee
Matron - BRIDH

Annex 4: Institutional Review Board Approval Letter

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INSTITUTIONAL ETHICAL REVIEW BOARD REVIEW AND ENDORSEMENT REQUIRED

Statement from the Institutional Ethical Review Board:

The MRCZ will only accept for review and approval research proposals that have been found both scientifically and ethically acceptable by an Institutional Ethical Review Board (IERB) appointed and operating in accordance with the Guidelines on Institutional Ethical Review Boards. The acceptable IRB will be that from the Institution in which the research is to be conducted or one from the institution conducting the research. In the case of institutions without IERBs, investigators are advised to seek advise from the MRCZ Office.

We the **Institutional Ethical Review Committee** established by

HARARE CITY HEALTH DEPARTMENT

(Name of Institution conducting the research/in which the research is to be conducted)

do certify that we have reviewed the research proposal titled

A study to explore factors that influence Adherence to anti-retroviral therapy among HIV and AIDS adult patients attending VART clinic at BRIDH

submitted by

GLORIA NICOMO

We attest to the scientific and ethical merit of this study and the competency of the investigator(s) to conduct the project and do hereby recommend the proposal to the MRCZ for approval.

SIGNATURES

		Date
Signature Ethics Committee representative	R Tapera	10/7/2013
Name (Please Print)	RUBY F TAPERA	
Signature : Head of Ethics Committee (or other authorized signatory)	PN Manungo BSc Nursing (Hons) MPH-UZ.	9-7-'3
Name (Please Print)	PHYLLIS MANUNGO	

Contact Tel. Number : 0772 447 943

E-mail address : pmanungo@yahoo.com rubytapera@yahoo.com

OFFICIAL STAMP OF INSTITUTION

CITY OF HARARE
10 JUL 2013
CITY HEALTH DEPARTMENT

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2013 -07- 11
RECEIVED
P.O. BOX CY 573 CAUSEWAY, HARARE

***Institution includes Universities, Hospitals, Research Institutes or Companies.**

Annex 5: Semi-Structured Interview Guide - English
Semi-structured Interview Guide for in-depth interviews with patients on ART

Procedure:

Patients will be recruited when they come to the clinic to pick up their monthly medications. Purposive sampling (patients on ART) will be done with the assistance of one of the nurse counsellors, as there is an established relationship of trust with patients receiving treatment at this hospital. The participants who meet the selection criteria (18 years and above ART for more than 6 months) will be informed verbally about the study by the counsellor on the day they will be attending the clinic and a choice given to the participants to meet the researcher or to decline. The researcher will explain to the participants' details of the study, then will hand over letters explaining the study and patient consent forms requesting permission to conduct the interviews with them as well as permission to audiotape the interviews. Once the letters of consent are returned, appropriate arrangements will be made for interviews to be conducted.

A) Basic Information

Name of interviewer: _____

Interview number:_____Age of participant_____**Sex**_____

Name of Health facility_____

Date:_____

B) Questions exploring adherence and non-adherence to antiretroviral treatment:

Knowledge about HIV and Aids-Can you tell me what you know about HIV/AIDS? (Patient answers freely what he/she knows, possible responses mode of spread, prevention and that there is no cure).

Knowledge about ARVs- Can you explain what you understand about ARVs? (Patient says freely what he/she knows, possible answers: not a cure, improves quality of life, prolongs life, lifelong treatment, knowledge about side-effects).

Duration on ART- How long have you been on ART?

Perceived benefits about ARVs-How have ARVs changed your health status?

Missing appointments- Have you ever missed an appointment at your ART clinic over the past 3 months or any other time? (If yes, probe reasons)

Missing doses: Have you ever missed a dose over the past three days? (If no, ask about the last seven days, if no again ask about the last month) What motivates you to continue taking your ARVs so consistently? Would you like to tell me the things that help you to remember taking your ARVs regularly and on time?

(Non-adherer) Have you ever missed a dose in the last 3, 7, 30 days, what are the things that contributed to missing your dose?

Adherence counselling- What are your views about adherence counselling?

High risk behaviour- Would you like to tell me how alcohol abuse and drug abuse affect taking medicines as prescribed?

Pill burden and side-effects- What are the main challenges you face in relation to pills, side-effects and food. Have you had your treatment changed at any moment since you were commenced on ARVs?

Cost- What costs do you incur as a result of your taking ARVs? (Probe on travel expenses, clinic costs, payment for ARV medications if any).

Distance to health facility- How do you think that distance to health facility affects adherence?

Stigma- Have you ever had any experience of being treated differently because of your HIV status (In your family, work, church or community)?

Disclosure and treatment support- Have you ever disclosed your status to anyone? If so, how what form of contribution?

Cultural factors-From your own experience what are some of the cultural factors that could prevent someone from taking ARVs?

Service delivery- What are your observations about service delivery at this hospital, that is, how do you relate with hospital staff during your review visits? (Probe: interpersonal relationship, privacy, confidentiality, respect, being listened to, time spent with patients, waiting time)

What suggestions do you have to improve service delivery at this hospital, if any?

Perceived problems and possible solutions

What do you perceive as the biggest problem regarding taking ARV treatment?

What do you think could be done to improve this?

Have you any questions for me?

Thank you for your time and cooperation.

Annex 6: Semi-structured Interview Guide - Shona

Semi-structured Interview Guide for indepth interviews with patients on ART

Zita retsvagurudzo

Tsvagurudzo yezvinokonzera kutevera kunwiwa kwemishonga zvakanaka pavarwere veHIV/AIDS vechikuru vanorapwa paBeatrice Road Infectious Disease Hospital,Harare,Zimbabwe**.**

Gwara(Procedure):

Varwere vachasarudzwa apo pavanenge vachiuya kuzotora mishonga yavo pamwedzi mumwe namumwe.Sarudzo yevarwere vari paART ichaitwa nerubatsiro kubva kunaMukoti sezvo vane hukama nevarwere varikurapwa pachipatara.Vachasarudzwa mutsvagurudzo iyi(vane makore gumi nemasere uye vave nemwedzi mitanhatu kana kupfuura vachirapwa pachipatara)vachaziviswa nezvetsvagurudzo iyi naMukoti nezuva ravachauya kuchipatara huye isarudzo yavo kuzvipira kuita tsagurudzo iyi pamwe chete nemutsvagurudzi kana kuramba.Mutsvagurudzi achatsanangura zvizere pamusoro petsvagurudzo,uye kupa tsamba dzinotsanangura tsvagurudzo pamwe chete netsamba inokumbira mvumo yekubvunza mibvunzo uye kutapa manzwi muhurukuro iyi.Kana izvi zvichinge zvaitwa uye mapepa emvumo adzoswa kune mutsvagurudzi zvino hurukuro ingachiitwa hayo.

A) Basic Information

Zita remutsvagurudzi:_____

Interview number:_____Makore earikubvunzwa_____**Sex**_____

Zita rechipatara_____

Zuva :_____

B) Questions exploring adherence and non-adherence to antiretroviral treatment:

Ruzivo pamusoro peHIV/AIDS-Mungandiudze here zvamunonzwisisa pamusoro peHIV/AIDS?(Bvumira murwere kusununguka kutaura zvaanoziva,bvunzurudza nezvekuparadzirwa,kudzivirirwa huye kurapwa kwacho.

Knowledge about ARVs-Mungandiudze here zvamunoziva pamusoro pemaARVs(Bvumira murwere kutsanangura kuti anorapa kana kuti haarapi chirwere,kumamwa zveupenyu hwese,uye nezvekurwadzisa muviri(side-effects)

Duration on ART: Mave nenguva yakareba sei muri paART?

Perceived benefits about ARVs-Mapiritsi aya(ARVs) arikushandura sei hutano hwenyu?

Missing appointments: Pamwedzi mitatu yapfuura **m**akambokundikana kuuya here pamakange manzi muuyekundoonekwa kuchipatara?Kana murwere akambodarikira bvunza chikonzero uye zvizere pamusoro pekukundikana kuuya (reason for mising appointments)**.**

Missing doses:(Asina kumbodarikira Pamazuva matatu apfuura makambodarikira here kana kunonoka kunwa mapiritsi nenguva yakatarwa? Ko pazuva manomwe apfuura, kana pane mwedzi wapfuura? Chii chinokusundai kunwa mishonga yenyu sezvamakataurirwa kuchipatara.Zvii zvinokurangaridzai kunwa mishonga yenyu nguva dzose?(Mubatsiri,chiringa zuva,nhare mbozha kana mumwe wemumhuri menyu kana hama yenyu.)

(Murwere akambodarikira)-Pamunombokanganwa kunwa mushonga chii chinenge chamboitika?Rubatsiro rupi rwamungade kukutondedzai kunwa mishonga zvakanaka?

Adherence Counselling: Munemaonero api parubatsiro rwunopiwa kuti munhu anatsonwa mishonga yake?

High risk behaviour:Munganditsanangurirewo here kuti zvinodhaka zvingavhiringa sei kunwa mishonga sekutaurirwa kwaakaitwa nachiremba?

Pill burden and side-effects: Idambudziko ripi ramunosangana naro pamishonga,kurwadza miviri uye chikafu.Mishonga yenyu yakambochinjwa here kubva zvamakatanga kurapwa?Kana mhinduro yenyu iri hongu nemhaka yei?(Kuramba kushanda uye kurwadza muviri)

Cost: Mutengo upi wamunosangana nawo nenyaya yekunwa mishonga(ARVs).Mari yekufambisa,Mari yekunyoresa,mari yekutenga mishonga uye kurasikirwa nemukana wekuita mari nekuuya kuchipatara.

Distance to health facility:Munoona sei nyaya yekuti mufambo(distance)wokuuya kuchipatara unokanganisa kunatsonwa mishonga yenyu?

Disclosure and treatment support: Makambotaurirawo here chero mhunhu nezveurwerehwenyu?Ndiani?Pane rubatsiro rwamakambowana here kubva kumhuri,nharaunda kana shamwari kubva pamatanga mishonga.

Cultural Factors: Kubva pamaonero enyu itsika dzipi uye maonero api angadzivisa murwere kutora mushonga wake(ARVs) sezvaanotarisirwa.

Service Delivery:Ndezvipi zvimwe zvezvamunoona pakubatsirwa kunoitwa varwere pano pachipatara sekuti pamunouya kuzowonekwa,(Tsvagurudza mabatirwo avanoita nevasevenzi vepachipatara,kusafumurwa,rukudzo,kutererwa,nguva inotorwa nemurwere,nguva yekumirira,rumwe rubatsiro runopiwa pachipatara.

Perceived problems and solutions:Nderipi ramungati idambudziko pakutora mushonga?Zvii zvingaitwa mukupedza dambudziko irori?

Mungaita mubvunzo here?

Maita basa nekuterera uye nenguva yenyu.

Annex 7: Participant Informed Consent - English

INFORMED CONSENT FORM FOR CLIENTS ON ART

PROJECT TITLE

A study to explore factors that influence adherence to antiretroviral therapy among HIV and AIDS adult patients attending ART clinic at Beatrice Road Infectious Disease Hospital, Harare, Zimbabwe.

Principal Investigator: Gloria Nkomo

Contact: Phone number: +263867771, email: nkomo.gloria63@gmail.com

Supervisor: Ms A Mosalo. mosala@unisa.ac.za or +27124296447

What you should know about this research study:

- We give you this consent so that you may read about the purpose, risks, and benefits of this research study.

- Routine care is based upon the best known treatment and is provided with the main goal of helping the individual patient. The main goal of research studies is to gain knowledge that may help future patients.

- We cannot promise that this research will benefit you.

- You have the right to refuse to take part, or agree to take part now and change your mind later.

- Whatever you decide, it will not affect your regular care.

- Please review this consent form carefully. Ask any questions before you make a decision.

- Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study of factors contributing to adherence of ART among HIV adult attending antiretroviral clinic.The purpose of the study is to explore factors contributing to adherence of antiretroviral therapy.You were selected as a possible participant in this study because you have experiences of taking ARVs and you are one of 15 participants that have been selected.

PROCEDURES AND DURATION

If you decide to participate, the researcher will conduct a face to face interview with you relating to your experiences about factors that contribute to adherence to ART. The interviews will take approximately one hour.

RISKS AND DISCOMFORTS

There are no risks or discomforts known but probably you may experience emotional feelings of sadness and if it occurs you will be referred to your counsellor for counselling.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document, the researcher will conduct interviews in a private room at the hospital allocated to the researcher. The researcher will take notes and audio-tape the interviews with your permission and the information will be kept at a secure place. Also there will be no mention of other people's names during the interview. Any information that is obtained in connection with this study that can be identified with you will remain confidential and will be disclosed only with your permission. Only the researcher, the university and the research ethics committee will have access to this information. Under some circumstances, the MRCZ may need to review patient records for compliance audits.

The researcher will give feedback on the findings of the study to those who participated in the study and the director of Harare City Health Department.

ADDITIONAL COSTS

No additional costs will be incurred by your participation.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary therefore you are free to choose either to participate or not to participate. If you decide not to participate in this study, your decision will not affect your future relations with the Beatrice Road Infectious Disease hospital, its personnel, and associated hospitals. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

OFFER TO ANSWER QUESTIONS

Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION

You are making a decision whether to participate or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered, and have decided to participate.

Research Title: A study to explore factors that influence adherence to antiretroviral therapy among HIV and AIDS adult patients attending opportunistic infection clinic at Beatrice Road Infectious Disease Hospital, Harare, Zimbabwe

_____ _____

Name of Research Participant (please print) Date

_____ _____

Signature of Witness Signature of Staff Obtaining Consent

(*Optional*)

YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant or research-related injuries; or if you feel that you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council of Zimbabwe on telephone 791792 or 791193.

Annex 8: Consent to Audio recordings

<u>Audio Recording</u>

The interviews will be tape (audio) recorded with your permission. The tapes will be used

(played) by the researcher after the interview to ensure that all the participant information is

captured. Participants may have the option of hearing the tapes prior to use by the researcher.

Upon completion of the study the tapes will be destroyed.

Statement of Consent to be Audiotaped.

I understand that audio recordings will be taken during the study. (Mark either "Yes" or "No")

- I agree to **being audio recorded** **Yes** ☐ **No** ☐

_____ _____

Name of Research Participant *(please print)* Date

_____ _____

Signature of Participant Time

_____ _____ _____

Name of Staff Obtaining Consent *(please print)* Signature Date

Annex 9: Participants Informed Consent - Shona

Gwaro rekuzivisa nekutsvaga mvumo pavanhu vari pa ART (Informed consent form for clients on ART)

Zita retsvagurudzo

Tsvagurudzo yezvinokonzera kutevedzera kunwiwa kwemishonga (ARVs) zvakanaka pavarwere veHIV ne AIDS vechikuru vanorapwa paBeatrice Road Infectious Disease Hospital, Harare, Zimbabwe**.**

Zita remutsvagurudzi : Gloria Nkomo

Phone number: +263772867771, email: nkomo.gloria63@gmail.com

Vanotungamira Tsvagurudzo : Ms A Mosalo. mosala@unisa.ac.za or +27124296447

Zvamunofanira kuziva pamusoro petsvagurudzo

- Ndichakupai gwaro iri kuti muzive chinangwa, njodzi pamwe chete nezvakanakira tsvagurudzo iyi.
- Kunatso rapwa kwenyu kunoenderana nokunatsoziva mushonga chinangwa chokubatsira murwere. Chinangwa chikuru ndechekuwana ruzivo ruchazobatsira varwere vanotevera.
- Handingakuvimbisei rubatsiro kubva mutsvagurudzo, asi sezvingangoitwa mukurapwa,tsvagurudzo iyi inogona kukonzeresa zvimwe zvinhu zvatisingatarisiri zvingave zvihombe kana zvidiki.
- Munekodzero yekuramba kana kubvuma kupindura mibvunzo yetsvagiridzo iyoyi, uye munogona kushandura mafungiro enyu kunyange ongororo ichinge yavapakati.
- Chero sarudzo yamunenge maita haikukanganisii kurapwa kwenyu.
- Natsai henyu kuverenga gwaro rino. Bvunzai mibvunzo musati maita sarudzo yenyu.
- Kupinda kwenyu mutsvagurudzo iyi hakumanikidzwe munhu.

Chinangwa chetsvagurudzo (Purpose)

Murikukumbirwa kuti mupinde mutsvagurudzo ine chinangwa chokuda kunzwisisa zvikonzero zvinoita kuti varwere veHIV vakwanise kunwa mishonga (ma ARVs) yavo nemazvo (adherence). Zvichabuda muongororo iyi zvichabatsira kuti vanhu vari pama

ARV vakwanise kunwa mishonga yavo zvakanaka. Makasarudzwa kuti mupinde musarudzo iyi nekuda kwekuti munonyatsonzwisisa zvokunwa maARVs uye muri mumwe wevanhu gumi nevashanu vachapinda mutsvagurudzo iyi.

Zvichaitwa patsvagurudzo (Procedure and Duration)

Kana mabvuma kupinda mutsvagurudzo, mutsvagurudzi achakurukura nemi, achikubvunzai mibvunzo yakanagana nekunwa kwamuri kuita ma ARVs enyu, uye muchipawo pfungwa dzenyu maererano nekutevedzera kunwiwa kwemushonga. Hurukuro iyi ingangotora nguva inoita awa rimwe chete(1 hour).

Njodzi ne kusagadzikana (Risk and Discomfort)

Hapana njodzi kana kusagadzikana kungangowanikwa nekupinda kwenyu mutsvagurudzo asi mungave munogona kusurukirwa kana madzamisa pfungwa dzenyu zvakanyaya. Kana izvi zvichinge zvaitika munotaura nacounsellor wenyu.

Tsindidzo (Confidentiality)

Kana mazvipira kupinda musarudzo iyi uye kana manyora chibvumirano pabepa iri (consent form) mucha bvunzwa muri muimba isina ani zvake anganzwe kana kuona. Hurukuro yedu tichai tapa manzwi, uye mutsvagurudzi achange achinyora pasi minduro dzenyu mushure mekunge tawana mvumo yenyu. Zvinyora izvi nezvitapwa(video tapes) zvichachengetedzwa panzvimbo isingagone kuvhurwa nemunhu wese wese. Zvichabuda muhurukuro iyi zvichango zivikanwa neni, mudzidzisi wangu neve bato rinoongorora nezvetsvagurudzo, uye hatitaure mazita evamwe muhurukuro yedu. Nedzimwewo nguva bazi reMRCZ rinogona kuda kuzoongorora kuti vaone kuti zvirikuitwa negwara chairo here. Mutsvagurudzi achakuudzai zvinenge zvabuda mutsvagurudzo iyi uyezve achaudzawo mukuru weveutano ku Harare City Health Department.

Mitengo inodiwa (Additional costs)

Hakuna mutengo wamunosangana nawo pakupinda musarudzo ino.

Kubvuma pasina kumanikidzwa (Voluntary Participation)

Hamumanikidzwi kupinda mutsvagurudzo iyi, naizvozvo munogona kubvuma kana kuramba. Kana dai muchinge mabvuma makasununguka kubuda muhurukuro iyi chero nguva ipi zvayo kana muchinge musisade. Kana mukasarudza kubuda mutsvagurudzo

hamuna mhosva kana mutongo wamunopiwa uye hazvikanganisi kurapwa hwenyu kana kuchinja ukama hwenyu neve pa Beatrice Road Infectious Disease hospital, vashandi vayo kana zvimwe zvipatara zvakafanana.

Kodzero yekubvunza mibvunzo (Offer to answer questions)

Musati mabvuma nekunyora zita renyu (signature) pabepa rino, sunungukai kubvunza mibvunzo isina kujeka kwamuri. Sunungukai kuita izvi nenguva yenyu yakafanira muchinyafunga nezvazvo.

Mvumo (Authorisation)

Murikuita sarudzo yokupinda mutsvagurudzo, runyoro rwenyu (signature) runotaridza kuti magutsikana nezvakanyorwa pamusoro , mibvunzo yenyu yose yapindurwa uye mabvuma kupinda mutsvagurudzo.

Zita retsvagurudzo

Tsvagurudzo yezvinokonzeresa kusatevera kunwiwa kwemishonga zvakanaka pavarwere veHIV/AIDS vechikuru vanorapwa paBeatrice Road Infectious Disease Hospital,Harare,Zimbabwe**.**

_____ _____

Name of Research Participant (please print) Zuva

_____ _____

Signature yaanopupura (witness) Zita remushandi apamvumo

MUCHAPIWA RIMWE GWARO RAKAITA KUNGE RINO KUTI MUCHENGETE.

Kana munemibvunzo pamusoro petsvagurudzo iyi,ngwaro ramanyora mvumo, mubvunzo yetsvagurudzo, kodzero dzenyu, kana zvimwe zvingadai zvakukanganisai kana pamusina kubatwa zvakanaka kana zvakare muchida kutaura nemumwe asiri pakati pevatsvagurudzi sunungukai kuphona ku Medical Research Council of Zimbabwe pa nhamba dzinoti 791792 or 791193.

Annex10: Consent to Audio-Recording - Shona version

Kutapwa kwemanzwi (Audio Recordings)

Hurukuro yose ichatapwa manzwi mushure mekunge tawana mvumo yenyu. Zvakatapwa zvicharidzwa kuti mutsvagurudzi anatsowana zvose zvakataurwa muhurukuro. Makasununguka kunzwa zvakatapwa zvisati zvashandiswa nemutsvagurudzi uye tsvagurudzo ichingopera zvose zvakatapwa zvichaparadzwa.

Gwaro rekubvuma kutapwa manzwi (Statement of Consent to be Audiotaped).

Ndanzwisisa kuti mazwi achatapwa muhurukuro yetsvagurudzo.(Bvumai kana kuramba).

Ndobvuma kutapwa mazwi mutsvagurudzo

Hongu ☐

Kwete ☐

Name of Research Participant *(please print)* Date

_____ _____

Signature of Participant Nguva

_____ _____

_____

_____ _____

_____

Zita remutsvagurudzi apamvumo

(please print)

Annex 11: Medical Research Council of Zimbabwe Application Letter

MEDICAL RESEARCH COUNCIL

OF ZIMBABWE

APPLICATION FOR REGISTRATION TO CONDUCT RESEARCH

This form must be completed by all persons/teams intending to conduct health/medical research in Zimbabwe. Upon completion by the investigator(s) it should be submitted to the Institutional Review Board(IRB) of the institution in which/under which the research is to be conducted. Upon completion of the relevant section by the IRB, the form should be submitted to the Secretary, Medical Research Council of Zimbabwe, P O Box CY 573 , Causeway, Harare. A registration fee should accompany each application. Cheques should be made payable to the Medical Research Council of Zimbabwe (MRCZ)

For Office Use Only

MEDICAL RESEARCH COUNCIL

OF ZIMBABWE

MRCZ/A/……..…

FC ☐EXP☐ XMPT☐

Date received

MRCZ FORM 101

……

APPLICATION TO CONDUCT HEALTH/MEDICAL RESEARCH

This form must be completed by all persons/teams intending to conduct health/medical research in Zimbabwe. Upon completion by the investigator(s) it should be submitted to the Institutional Review Board (IRB) of the institution in which/under which the research is to be conducted. Upon completion of the relevant section by the IRB, the form should be submitted to the Secretary, Medical Research Council of Zimbabwe, P O Box CY 573, Causeway, Harare.

Protocol Version Number :……..

Details of Research Team

Name of Principal Investigator (P.I)	**Gloria Nkomo**
Nationality of P.I	**Zimbabwean**
Existing Qualifications	**Bachelor of Arts in Nursing**
Academic Title	**Public Health Nurse**
Institution & Dept.	**N/A**
Postal address	**1451 Silcox Avenue, Houghton Park, Harare**
E-mail address	**Nkomo.gloria63@gmail.com**
Telephone No.	**+263772867771**
Is this research expected to lead to the award of a higher degree? (Yes/No)	**Yes**
University/Institution where registered	**University of South Africa (UNISA)**

Details of the Proposed Research

Title of proposed research	**A study to explore factors that influence adherence to antiretroviral therapy among HIV and AIDS adult patients attending antiretroviral therapy clinic at Beatrice Road Infectious Disease Hospital, Harare, Zimbabwe.**
Proposed starting date	**01/07/2013**
Proposed ending date	**14/08/2013**
Performance site(s) in Zimbabwe	**Beatrice Road Infectious Disease Hospital**

Performance sites (outside Zimbabwe)	**None**
Total number of study personnel	**3**
Budget (state currency)	**US$2500**
Name and address of Funding agency:	**Self**
Status of funding :	a)Submitted for funding ☐ b)Pending ☐ c)Funded☒

Population : Proposed inclusion criteria *(Check all that applies)*	**Type of study***(check all that applies)*
Males : ☒	
Females : ☒	Survey : ☐
Adolescents (12 – 17 years) : ☐	Secondary data : ☐
Children (Under 12 years of age) : ☐	Program Project : ☐
Pregnant women : ☐	Clinical community trial : ☐
Foetuses : ☐	Case control :☐
Elderly (over 65 years) : ☐	Longitudinal study : ☐
Prisoners : ☐	Record review : ☐
Cognitively impaired : ☐	Course activity : ☐
Hospital inpatients : ☐	Other (specify) : Descriptive Phenomenological

Consent Process*(Check all that applies)*

Written : ☒ English : ☒ Local Language : ☒

Proposed sample size Approximately **15 Patients (Data will be collected until saturation occurs).**

Reading level of consent document :

Below Grade 3☐ Below Grade 6☒ Below Form 2☐ Below Form 4☐ Above O level☐ Graduate level☐

Determination of Risk*(Check all that applies)*

Does the research involve any of the following	**YES**	**NO**
Human exposure to ionizing radiation	☐	☒
Fetal tissue or abortus	☐	☒
Investigational new drug	☐	☒
Investigational new device	☐	☒
Existing data available via public archives/sources	☐	☒
Existing data not available via public archives	☐	☒
Observation of public behaviour	☐	☒
Is the information going to be recorded in such a way that participants can be identified	☐	☒
Does the research deal with sensitive aspects of the participants behaviour, sexual behavior, alcohol use or illegal conduct such as drug use	☐	☒
Could the information recorded about the individual if it became known outside of the research, place the participants at risk of criminal prosecution or civil liability	☐	☒
Could the information recorded about the individual if it became known outside of the research, damage the participant's financial standing, reputation and employability?	☐	☒

- **Do you consider the proposed research**
  - A) greater than minimal risk ☐
  - B) minimal risk ☐
  - C) no risk ☒

Minimal risk is a risk where the probability and magnitude of harm or discomfort anticipated in the proposed research are not greater in and of themselves than those ordinarily encountered in daily life or during the performance of routine physical, psychological examinations or tests. For example the risk of drawing a small amount of blood from a healthy individual for research purposes is no greater than the risk of doing so as part of routine physical examinations.

- Do any of the participating investigators and or their immediate families have an equity relationship with the sponsor of the project or the manufacturer or owner of the drug or device under investigation or serve as a consultant to any of the above? **YES** ☐ **NO** ☒

  If yes, please submit a written statement of disclosure to the Chairperson of the MRCZ

SIGNATURE ASSURANCE SHEET

Principal Investigator's Assurance Statement:

I certify that the information given by me is correct to the best of my knowledge, I am familiar with and understand the Medical Research Council of Zimbabwe's policy concerning research involving human participants (CIOMS Guidelines or Helsinki Declaration) and I agree:

(Please check all that applies)

1. ☒to accept responsibility for the scientific and ethical conduct of this research study;

2. ☒to obtain prior approval from the relevant IRB as well as the MRCZ before amending or altering the research protocol or implementing changes in the approved consent form;

3. ☒to immediately report to the relevant IRB and the MRCZ any serious adverse reactions and/or unanticipated effects on participants which may occur as a result of this study;

4. ☒to complete and submit the Continuing annual Review Form annually (when due) as well as the Final/Study termination form at the end of the proposed study.
5. ☒to submit the final study report to the MRCZ using standard form (MRCZ Termination Form 105).
6. ☒to pay one percent levy to the MRCZ upon approval of my protocol (for study monitoring and general research participants protection requirements).

Signature G. Nkomo Date 05/07/2013

Print name GLORIA NKOMO

Signature of Co-investigator Date

Print Name

Annex 12: Medical Research Council of Zimbabwe Approval Letter

Telephone: 791792/791193
Telefax: (263) - 4 - 790715
E-mail: mrcz@mrcz.org.zw
Website: http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL LETTER

Ref: MRCZ/B/532 **12 July, 2013**

Gloria Nkomo
1451 Silcox Avenue
Houghton Park
Harare

RE: A study to explore factors that influence adherence to antiretroviral therapy among HIV and AIDS adult patients attending opportunistic infection clinic at Beatrice Road Infectious Disease Hospital, Harare, Zimbabwe

Thank you for the above titled proposal that you submitted to the Medical Research Council of Zimbabwe (MRCZ) for review. Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study. This is based on the following documents that were submitted to the MRCZ for review:

a) Study Proposal
b) English and Shona Informed Consent Forms

- **APPROVAL NUMBER** **: MRCZ/B/532**

This number should be used on all correspondence, consent forms and documents as appropriate.

- **TYPE OF MEETING** **: Expedited Review**
- **APPROVAL DATE** **: 12 July, 2013**
- **EXPIRATION DATE** **: 11 July, 2014**
  After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING**: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices.
- **QUESTIONS**: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw
- **Other**
- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

.....

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2013 -07- 12
APPROVED
P.O. BOX CY 573 CAUSEWAY, HARARE

PROMOTING THE ETHICAL CONDUCT OF HEALTH RESEARCH