

STRATEGIES UTILIZED BY PROFESSIONAL NURSES IN THE PRIMARY HEALTH
CARE FACILITIES REGARDING ADHERENCE OF PATIENTS TO
ANTIRETROVIRAL THERAPY, CAPRICORN DISTRICT, LIMPOPO PROVINCE,
SOUTH AFRICA

By

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DECLARATION

I declare that Strategies utilized by professional nurses in the primary health care facilities regarding adherence of patients to antiretroviral therapy, Capricorn District, Limpopo Province, South Africa, is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references and that this work has not been submitted before for any other degree at any other institution.

Phashe Maano Lydia

Student Number

Date

DEDICATION

I dedicate this study to my parents whose esteem for the value of education and whose willingness to sacrifice for their children always remain fresh in my memory, my brother (Placid) and my sisters (Martha, Salome and Eva). To my two beloved sons, Kopano and Katlego who are my source of motivation for me to live, study and work in this world. A lot of thanks to my beloved, soul-mate Gerry, you have been my inspiration, May God bless you all.

Above all, to God, who opened the life-gate to all sinners to be saved through Jesus Christ.

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ABSTRACT

The success of antiretroviral therapy for HIV infection through widespread and resounding has been limited by inadequate adherence to its unforgiving regimens especially over a long term. While health care professionals may not be able to predict adherence, they can help overcome barriers to adherence and take steps to improve it. The aim of the study was to explore and describe the strategies that are utilised by professional nurses in the primary health care facilities regarding adherence to antiretroviral therapy, Capricorn District, Limpopo Province, South Africa. A qualitative research approach was used to describe the strategies that are utilised by professional nurses in the primary health care facilities in the Capricorn District Limpopo Province, referring to Mankweng Hospital. The descriptive qualitative design was used. Unstructured interviews were used to collect data until saturation was reached. Informed consent was obtained prior the data collection. The data was analysed qualitatively using Tesch's open coding method. 18 (eighteen) professional nurses working in the primary health care facilities participated in the study. The findings revealed that the strategies utilised by professional nurses in the primary health care facilities to improve adherence to ART were described. Information and education, health worker and adherence guidelines, use of adherence partner or treatment buddy, addressing religious beliefs, communication skills, community mobilisation and continuous counselling, were the strategies that were utilised by professional nurses in the primary health care facilities to improve adherence of patients to ART.

Key concepts:

Strategies, professional nurses, primary health care facilities, adherence, antiretroviral therapy, antiretroviral drugs, HIV/AIDS patients.

ABBREVIATIONS

AIDS- Acquired Immune Deficiency Syndrome

HIV- Human Immune Deficiency Virus

PLWHA- People Living with HIV AIDS

ART- Antiretroviral Treatment

HAART- Highly Active Antiretroviral Treatment

UNAIDS- United Nations Programmes on HIV/AIDS

UNGASS- United Nations General Assembly Special Session

WHO- World Health Organisation

ADES- Adverse Drug Events

NIH- National Institute of Health

ZL- Zanmi Lasante

MSH-Management Sciences for Health

KHARMA- The Keeping Healthy and Active with Risk reduction and Medication Adherence

CHBC- Community Home Based Care

DOTS - Directly Observed Treatment Short Course

DAART- Directly Administered Antiretroviral Treatment

MI- Motivational Interviewing

ARV- Antiretroviral

SMS- Short Message Services

CAG- Community Adherence Groups

USA- United States of America

AIDSinfo- Acquired Immune Deficiency Syndrome information

DEFINITION OF TERMS

PROFESSIONAL NURSE: Nursing Act No. 33 of 2005 Section 30 (1) defines a professional nurse as a person who is qualified and competent to independently practice comprehensive nursing in the manner and to the level prescribed and who is capable of assuming responsibility and accountability for such practice. In this study, professional nurses are those nurses that work at the primary health care facility and practise comprehensive nursing to patients on antiretroviral treatment.

ANTIRETROVIRAL DRUGS (ARVs): are defined as the treatments that have been applied to combat the HIV virus in a bid to slow down the progression of AIDS and ultimately prolong the life of the infected individual. When the patients CD4+ count reaches 200 or lower and their conditions is life threatening. It is recommended that they go onto a course of antiretroviral (UNAIDS/WHO, 2006). In this study, antiretroviral treatment is a combination of drugs that are viro-static which blocks the steps in the replication of the virus, they are not curative, but continued use of drugs slows disease progression.

ADHERENCE: is defined as the extent to which a patients taking of his/her medication matches the prescribed drug regimen (Ingersoll and Cohen, 2008). In this study, adherence refers to taking of prescribed medication in the right way or the extent to which a patient takes medication in the way intended by a health care provider.

STRATEGIES: Collins English Dictionary (1994) defines strategies as the general undetailed plan of action encompassing a long period of time to achieve a complicated goal. In this study, strategy refers to the methods or plans utilised by the professional nurses in the primary health care facilities regarding adherence of patients to antiretroviral treatment.

VIROSTATIC: Merriam Webster Medical Desk Dictionary (2007) defines virostatic as checking the growth of the virus and inhibiting the viral replication. In this study, virostatic refers to the antiretroviral drugs that block the replication of the HIV virus.

PRIMARY HEALTH CARE FACILITY: is defined as a place that provides non-specialized health services which are known as the first-line health services. It is usually outside the hospitals where people who are in the community are served (Sines et al., 2005).

In this study, it refers to the clinics where primary health care services are rendered to patients by the professional nurses.

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CHAPTER 1: OVERVIEW OF THE STUDY

1. INTRODUCTION AND BACKGROUND

In 2010, World Health Organisation (WHO) estimated that there were 34 million people living with HIV (WHO, 2011). The emergence of ART transformed Human Immune Virus (HIV) from a terminal illness to a chronic disease and resulted in significant decreases in HIV related morbidity and mortality, however good clinical outcomes depend on access and adherence to treatment (Scalon and Vreeman, 2013). While health care professionals may not be able to predict adherence, they can take steps to improve it. Strategies to improve patient adherence can be grouped into three categories related to the patient, the clinic, health care team and the regimen (McNicholl, 2008).

Emerging technologies-based intervention strategies recently evaluated for their ability to improve adherence include counselling, pill organizers, electronic reminder and education devices and cellphones (Nachega, Mills and Schechter, 2010). Pill box organizers and reminder key rings are attractive for resource-limited settings but have not yet been evaluated. Cellular telephone technology however may be of great utility in both developing and developed countries to provide reminders for adhering to medication schedules and keeping clinic visits (Nachega, Mills and Schechter, 2010). The cellular phone approach is culturally relevant for telephone owners, is largely confidential and is not affected by distance and can be uniquely modified to meet patients individual education or lifestyle needs (Nachega, Mills and Schechter, 2010).

Patients should understand that their first regimen usually offers the best chance for a simple regimen that affords long-term treatment success and prevention of drug resistance (AIDSinfo, 2014). Given that effective response to ART is dependent on good adherence, clinicians should identify barriers to adherence such as patients schedule competing, psychosocial needs, learning needs and literacy level before treatment is initiated. As appropriate, resources and strategies that will help the patient to achieve and maintain good adherence should be employed (AIDSinfo, 2013).

Individualizing treatment with involvement of the patient in decision making is the cornerstone of any treatment plan (AIDSinfo, 2014). The first principle of successful treatment is negotiation of an understandable plan to which the patient can commit

(AIDSinfo, 2013). Establishing trusting relationship overtime and maintaining good communication will help to improve adherence and long-term outcomes (AIDSinfo, 2014). An increasing number of interventions have demonstrated efficacy in improving adherence to ART (Simoni et al., 2010). A meta-analysis of 19 randomized controlled trials of ART (Nachega et al., 2014) adherence interventions found that intervention participants were 1.5 times as likely to report 95% adherence and 1.25 times as likely to achieve an undetectable viral load as participants in comparison conditions (Peltzer et al., 2012).

Effective adherence interventions vary in their modality and duration, providing clinics, providers and patients with options to suit a range of needs and settings. Some effective interventions identified include nurse home visits, five-session group intervention, pager messaging and couples-based interventions (AIDSinfo, 2013). Substance abuse therapy and strengthening social support also improve adherence (AIDSinfo, 2014). All health care team members, including nurses, nurse practitioners, pharmacists, medication managers and social workers have integral roles in successful adherence programs. DOT has been shown to be effective in provision of ART to active drug users (Berg et al., 2011).

Current approaches to ART adherence monitoring include various forms of structured patient interview (also known as self-report), pill counts, pharmacy refill and electronic monitoring (Haberer et al., 2010). Real time adherence monitoring could allow for the detection of adherence lapses and interventions to resume treatment prior to the development of virologic rebound and drug resistance which has not previously been possible (Haberer et al., 2010). The real time approach is particularly important in settings with limited treatment options in that resources for behavioural and structural interventions could be directed specifically at identified adherence lapses (Haberer et al., 2010).

A health professional role needs to be limited to technical tasks especially patient care. Sahay et al., 2011 reported that community mobilisation could be an adjunct strategy to meet HIV diagnosis, care and treatment needs in resource-limited settings including India. Community support for patients on ART in the public sector represents a continuum that stretches from more formalized community health workers to informal activities, including voluntary support groups for people living with HIV/AIDS and local

social capital (Wouters et al., 2009). Successful treatment response was observed to be significantly higher among patients with an assigned community health worker and participation in a support group also had a significant positive effect on the selected virological and immunological measures (Wouters et al., 2009).

Most clinics lack a standardised appointment system which leads to poor records on patients who are expected to attend the clinic (Mwatawala et al., 2012). As a result, no one knows if scheduled patients have arrived and no standardised system exist to early track patients missing clinic. Those facilities that do follow patients mainly track those who are categorised as lost to follow drug resistance and failure (Mwatawala et al., 2012).

Promoting adherence sufficient to achieve viral suppression helps to create optimal outcomes in both individual and public health (Finitsi, Pellowski and Johnson, 2014). The current standard in the United Kingdom of care in promoting adherence is patients contact with health care providers (Finitsis, Pellowski and Johnson, 2014). A number of reviews support the efficacy of behavioural interventions to promote ART adherence, yet these interventions have diverse approaches and variable financial costs (Barnighausen et al., 2011). In order to translate effectively, the practice community requires effective interventions that minimise the necessary financial burden to implement (Amico and Orrell, 2013).

2. RESEARCH PROBLEM

The roll-out of ARV in South Africa in 2004 brought hope and challenges, one of which is retention of patients in the ART programmes (Ware et al., 2013). Failure to comply with strict adherence to ART remains a problem in South Africa (AIDSinfo, 2014), and consequently, the quality of life of those infected might not be optimally improved as would be expected. Research indicates that for optimal viral suppression and effective outcome of ART, adherence should be more than 95% (WHO, 2011).

Adherence is very complex and unpredictable among patients on chronic medications as well as those on antiretroviral medications (Adefolalu and Nkosi, 2013). Several adherence enhancing methods are used in combination for better results in antiretroviral therapy. The interventions used in enhancing adherence among patients are aimed at addressing potential barriers to adherence (Adefolalu and Nkosi, 2013).

For ART to work, patients must adhere to daily regimen on ARVs for life. Interrupting treatment can result in HIV becoming drug resistant, making first line therapy no longer effective. Therefore keeping patients in treatment programme is imperative and the rise in patients failing to follow up their ART after 36 months is particularly worrying (UNAIDS, 2013). There have been instances where people have chosen not to adhere to their treatment properly so that they are considered disabled (UNAIDS, 2012).

The study was motivated by an increase in the number of admission of patients on ART at Mankweng hospital, Limpopo Province, with complications such as drug resistance, diabetes, treatment failure and toxicities as referrals from primary health care facilities (Mankweng Hospital Statistics, 2012-2013). Mankweng Hospital is situated in Mankweng township which is 30 km from Polokwane on the Tzaneen road, Capricorn District Municipality in the Limpopo Province of South Africa with a population of 33,738. Mankweng township is relatively small with a very dynamic community and draws skilled professionals in to the area due to the fact that the area houses a leading regional hospital with 18 clinics using it as referral. Mankweng Hospital has 509 usable beds including 27 sub-acute beds, a teaching and public institution, cater for their people around Mankweng area and serve as the secondary hospital for Capricorn District. The study used five(5) clinics out of 18 clinics referring to Mankweng hospital. Although ART is readily available in South Africa and is provided free of charge in the public sector to patients who meet the eligibility criteria, it seems that patients on ART often do not comply with the strict treatment regimen. Non-adherence to ART, however still remains a challenge which affects the quality of life of people living with HIV/AIDS.

Since the professional nurses actively interact with patients on ART, an understanding of adherence may contribute to the implementation of strategies that would improve the adherence rate of patients on ART. Therefore, the professional nurse strategies and ART would influence a patient adherence to ART and was described.

3. AIM OF THE STUDY

3.1. Research Objectives

The objective of the study was to describe the strategies utilized by professional nurses in the primary health care facilities regarding adherence of patients on ART, Capricorn District, Limpopo Province.

3.1.1. Research Question

What are the strategies utilized by the professional nurses in the primary health care facilities regarding adherence of patients on ART, Capricorn District, Limpopo Province, South Africa?

4. PURPOSE OF THE STUDY

The purpose of the study is to explore and describe the strategies utilized by professional nurse in the primary health care facilities regarding adherence of patients on ART, Capricorn District, Limpopo Province.

5. LITERATURE REVIEW

A literature review is defined as a summary of theoretical and empirical sources to generate a picture of what is known and not known about a particular problem (Burns and Grove, 2011). The literature review ensures the inclusion of important view- points which could likely influence the study.

ART adherence is one of the major concerns in the public health sector. ART is very important as it can lead to suppression of HIV virus type I plasma viremia to undetectable levels of more than 3 years or more (Belzer et al., 2005). High levels of adherence are essential for optimal benefit of ART. ART has to be taken every single day at the same time for the rest of patients life for the simple fact that disease process is chronic and ARV manage and suppress the virus (WHO, 2010).

5.1. FACTORS AFFECTING ADHERENCE TO ART

Adherence to ART can be influenced by characteristics of the patient, the regimen and clinical setting (McNicholl, 2008). To assure adherence, it is critical that the patient receive and understand information about HIV disease, the goal of therapy and the specific regimen prescribed. A number of factors have been associated with poor adherence including the following:-

5.1.1. Practical, environmental and service related problems

The number of pills taken at different times in the day struggled significantly more to obtain optimum adherence. The most common regime-related reason for non-adherence was side effects. Hidden costs involved in being on ART such as lack of food especially

those medications with food requirements. The health care system failing to sustain the ART, transport problems or could not get time off from work since the average clinic visit in South Africa consumes a full working day according to Wilson and Fairall (2010).

5.1.2. Health worker support

ART users are unsupported in their day to day efforts to adhere and complained that test results are not explained or shared with them. Some ART users never had the intention of taking ART, but were coerced by health care workers. There are no treatment supporters to them to achieve level over 90% (Kip, Ehlers and Van der Wal, 2009).

5.1.3. Personal and psychological factors

Barriers to adherence of great concern are alcohol abuse and depression. In the optimum adherence, 5% and 4.5% gave alcohol use or depression as reasons for non-adherence (Kagee, 2008). Further psychological barriers that predicted low ART adherence levels were forgetfulness, lack of planning, communication problems and treatment fatigue.

5.1.4. ART literacy and knowledge

About 30% of ART users did not know that non-adherence can lead to drug resistance and failure, 43% did not realize that drug resistant viruses could be passed on to a sex partner and 60% wondered what all the fuss was about because – should drug resistance develop, the clinic could simply prescribe another drug that works (Aspeling and Van Wyk, 2008).

5.1.5. Perception of lack of control over own health

Perception that they do not have over their own health, and that nothing they do will make any difference to their situation, also predicted ART non-adherence. Some of the reasons given for not being in control of their health were the following; nature of the illness, which is often unpredictable living in disempowered communities and cultural disbeliefs that are bewitched, and that they did not think the ARV would really help them (Aspeling and Van Wyk, 2008).

5.1.6. Stigma and Discrimination

Stigma and discrimination and lack of social support are often mentioned in the literature as some of the main reasons why ART taking from colleagues, friends and others. In this

research on ART support groups in Venda in 2009 McNeil was struck by the public silence surrounding health, sickness and death. The public silence, according to McNeil, should not be seen as a lack of knowledge or as denial but as an act of self defence against stigma (Aspeling and Van Wyk, 2008).

5.2. STRATEGIES USED TO IMPROVE ADHERENCE TO ART

Adherence is very complex and unpredictable among patients on chronic medications. Several methods of enhancing adherence exist in ART and are usually used in combination for better results. The interventions used in enhancing adherence among patients are aimed at addressing potential barriers to adherence (Adefolalu and Nkosi, 2013).

The ART strategies entails simplifying regimen characteristics, dosing schedules, reduction of pill burden and adjusting dietary restrictions to match patients daily activities. In addition, identifying the previous ART use and pre-existing medical condition that could affect ART use ensuring continuous provision of ART have also been reported to enhance adherence to ART (Birbeck et al., 2009). Many fixed-dose combination (FDC) of ARVs are now available and have been shown to improve adherence in patients (Parianti et al., 2009; Kauf et al., 2012; Haberer et al., 2011).

The buddy system has been widely used in resource-limited settings where relatives or friends agree to assist the patient in adhering to the medication (Birbeck et al., 2009). Buddies remind patients to take medication, encourage them and assist in keeping hospital appointments. These not only assist the patient in adhering to ART but can also provide psychological support to the patient which helps to cope with the disease (Nachega et al., 2006).

Education and counselling are usually the mainstay of ART programmes in any setting. Education and counselling empowers the patient to be part of the treatment process. Knowledge about the disease, its symptoms, treatment and side effects of the medications are crucial information that has to be passed onto the patient (Magadza et al., 2009).

During counselling, potential barriers to adherence are identified and addressed counselling assist the patient in developing positive beliefs and perception towards the disease (Barclay et al., 2007). A randomised controlled trial in the USA to compare the effect of person-to-person contact and support adherence with medication alarm

techniques revealed improved responses to therapy and good adherence support (Mannleimer et al., 2006). This finding is consistent with the literature where repeated supportive adherence has been described as the most effective intervention because it provides human contact and support (Simoni et al., 2006).

Interventions to improve ART adherence include a range of techniques borrowed from the psychotherapy literature. Negative beliefs such as scepticism about the efficacy of ART, concerns about medication effects or adverse drug events (ADES) and inaccurate ideas about using ART intermittently all predict non-adherence (Koenig et al., 2008).

With the increasing access to ART in Sub-Saharan African HIV positive populations, it is important to find additional simple, effective and feasible methods of improving and maintaining adequately high levels of adherence (Kunutsor et al., 2012). These strategies included a combination of elements such as counselling, group education, leaflets, late attendance tracing and adherence diaries was implemented for an ART (Kunutsor et al., 2012).

Continuous monitoring of both adherence and correlating it with clinical outcomes will create interactive feedback mechanisms that could lead to optimal clinical states and improved quality of life for patients. Diagnosing and treating health problems such as depression, reducing substance abuse, improving patient and provider relationship. Counselling and enhancing family and community support mechanisms are shown to improve adherence as well as intervening on modifiable barriers to adherence before starting ART (Simoni et al., 2008).

The investigations of interventions indicate that electronic reminders, pill organizers, medication event monitoring systems to record dosing behaviour, use of internet, education services, use of phone and so forth can also enhance adherence. Cell phone message reminders and web-based interventions require patient resources and literacy which could create obstacles to their applicability in Sub-Saharan Africa (Simoni et al., 2008).

The practitioners described several mechanisms and interventions through which they seek to support clients in adhering to ART. These interventions differ per setting, but there is overlap and interactions between providers and clients are central to most of them. In resource-rich settings like Scotland, psychologists can become involved in the

management of clients adherence. Acknowledging that patients can make an informed choice not to adhere, Matthews emphasises that the role of the psychologist is not to persuade patients to take treatment but to facilitate informed decision making and to address psychosocial issues, if appropriate and if the patient is keen for such help (Cote et al., 2008).

Peer support is used as a mechanism to support adherence in resource-poor settings like Malawi. Malawi has an adult HIV prevalence of 12% (UNAIDS, 2009). In Malawi, support groups are set up in villages, workplaces or barracks. Their purpose is to offer peer support in order to enable clients to see positive examples of adhering clients and to reduce stigma. Clients are asked to arrange peer support from a guardian for treatment: usually a close friends or relative guardians should come with the client to the first few appointments (before starting treatment) and at certain specific moments such as when the regimen needs to be changed (Cote et al., 2008).

6. RESEARCH METHODOLOGY

6.1. Research Design

A descriptive qualitative design was used to address the research questions in this study.

The research approach is discussed in detail in Chapter Three.

6.2. Sampling

The non-probability purposive sampling was used in this study. The total number of the sample was 20 professional nurses in the five primary health care facilities who dispense ARV to patients on daily basis and referring to Mankweng Hospital and willing to participate.

6.3. Data Collection

Data was collected mainly through in-depth one-on-one interviews. Observation was also used to collect and triangulate data. A detailed discussion on data collection is presented in Chapter three.

6.4. Data Analysis

Tesch's approach (Poggenpoel, 2001) was used to guide data analysis for this research. All tape recordings were listened to and transcribed verbatim. Field notes taken during semi-structured interviews were given meaning. The ideas that came out of the interview sessions were then consolidated. A list of all the questions and their responses were grouped in columns. The arrangement of topics in columns is as follows: themes, categories and subcategories. The list of topics were compared with the original data. Codes were allocated to data according to topics identified. Data belonging to each category were grouped and analysed and then final remarks on data analysis written. The process is discussed in detail in Chapter three and four.

6.5. Trustworthiness

To ensure trustworthiness, Guba's model (1995) cited in De Vos (2012) was adopted.

6.5.1. Credibility

Credibility is an alternative to internal validity in which the goal is to demonstrate that the inquiry will be conducted in such a manner to ensure that the participants will be accurately identified and described (De Vos et al., 2012). Appointments were set so that the researcher have close contacts to interact with the primary health care professional nurses to make sure that there is prolonged engagement with them when conducting the study and develop more trusting relations. The researcher explained all the objectives and purpose of the study to the primary health care professional nurses, Capricorn District, Limpopo Province.

In qualitative research, the study is considered trustworthy if the information obtained from the participants is represented accurately. The researcher wanted the truth to reflect in their findings. Accurate findings will contribute evidence that will guide the clinical practice and in this manner rigor in qualitative research results, to be accepted by all the members of the scientific community as a whole, the results will utilize model of Lincoln and Guba (1985) in Kefting, 1991) to ensure or evaluate the trustworthiness of data and interpretation of the research.

6.5.2. Conformability

Conformability guarantees that the findings, conclusion and recommendations will be supported by the data and there is an agreement between the researcher interpretation and the actual evidence (Holloway and Wheeler, 2002). Conformability of the research findings was ensured by the researcher leaving an audit trail, which is a record of activities than can be followed by another researcher. Experts in qualitative research and an independent coder were involved to evaluate the whole research process.

6.5.3. Dependability

Dependability is concerned with the stability of data over a specified time and over conditions (Holloway and Wheeler, 2002). If the findings of the study are dependable, they should be consistent and accurate. Any researcher can depend on the research findings once there is truth value in the results. Dependability audit was ensured thorough involvement of experts in qualitative research and an independent coder.

6.5.4. Transferability

Transferability means that the results of the research study may have meaning to other areas with similar problems (Polit and Beck, 2008). Research findings will be applied in other settings and yield the same results in different settings and this can be enabled by thick description of the context of data collection. Transferability is the extent to which results from the data can be transferred to other settings, and in this research the results from the data can be transferred to the primary health care facility professional nurses optimising patient's adherence to ART. This process ensures that findings become applicable to other settings. Transferability means that research results will prove consistency if applied in similar context.

6.6. Bias

The researcher's perspective was bracketed. The process of bracketing was intended to improve the researcher objectivity. The research is qualitative in nature and so required interviews and observations, that is why we used bracketing. Bracketing developed a non-judgemental researcher whose objectivity about the participants and the material did not impede the perception of the phenomenon at the heart of the study. The researcher

pursued issues of importance introduced by the participants, rather than leading participants to issues deemed important by the researcher.

7. ETHICAL CONSIDERATION

7.1. Ethical clearance and permission to conduct the study

An ethical clearance was obtained from Medunsa Research Ethics Committee (MREC) and permission was obtained from the Limpopo Department of Health Research Ethics Committee, Senior Manager primary health care services and from participants who were taking part in the study.

7.2. Human rights to informed consent

Human rights of the participants were respected in this study. Human rights are in fact the highest priority throughout professional and scientific communications. Permission was sought from the participants in the form of a letter which was given a guarantee of the participant rights to withdraw from the discussion at any stage if and when they feel like withdrawing. This was done after the participants have consented to participate and informed consent was obtained.

7.3. Anonymity and Confidentiality

Beneficence means that the researcher increased the benefits and minimise the risk of harming participants mentally and physically. The right to confidentiality was respected because even though the researchers knew the particulars and their responses, the information was not disclosed to unauthorised individuals. Anonymity was respected and the given responses were not identified with the given participants. The participants should comprehend all the information and have the power to choose freely and consent voluntarily to take part in research or decline to do so (Polit and Beck, 2008). Contact addresses as well as fax and telephone numbers of the researcher were given to the participants. Other aspects to be explained to the participants included the method of data collection and the type of information needed. The participants were given sufficient time to review the consent letter before signing and the document was eventually signed.

8. SIGNIFICANCE OF THE PROPOSED RESEARCH

Strict adherence to ART is necessary to prevent the development of HIV resistant strains. In order to develop effective strategies to increase adherence, it is important to understand the factors that influence adherence. The findings of this study helped to improve the primary health care facilities services and develop strategies that was utilised by professional nurses to maximise adherence of patients to ART.

The government and the society at large benefited indirectly because of the expected improved quality of life adjusted years of people living with HIV/AIDS. Upon analysing the research methodology used, primary health care facilities professional nurses in similar settings were able to apply the recommendations from this research towards improvement of their service delivery to optimise or maximise patient adherence to ART.

9. CONCLUSION

The success of potent ARV treatment for HIV infection is primarily determined by adherence. Antiretroviral drugs are indeed wonder drugs that can save millions of lives. The overall picture that emerged from ARV adherence study and the literature in general, is alarming and we might face a huge health crisis in future if we do not take steps now to address adherence barriers and increase adherence levels. 27 relevant reports from 26 studies of behavioural, cognitive, biological, structural and combination interventions were done between 2003 and 2010. However, some interventions are unlikely to have larger lasting effects and others are effective only in specific settings (WHO, 2011).

Early detection of non-adherence and prompt intervention can greatly reduce the development of viral resistance, and the likelihood of treatment failure (NIH, 2011). It is therefore becomes a community obligation to support ARV users to overcome their barriers and to manage their own health by adhering to their ARVs. The current standard of care in promoting adherence is patient contact with their health care providers (NIH, 2011).

Effective adherence interventions vary in their modality and duration, providing clinics, health providers and patients with options to suit a range of needs and settings (WHO, 2011).

By describing the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients to ART, this study identified possible solutions to effective strategies to problem of non-adherence from the professional nurses perspective.

The next chapter is on literature that was reviewed for this study.

CHAPTER 2: LITERATURE REVIEW

2.1. INTRODUCTION

Adherence to treatment regimens remains one of the most important factors related to treatment success (AIDSinfo, 2014). Complete adherence to any medication regimen is difficult. Health care providers cannot predict patient adherence to therapy, but they can help patients overcome some barriers to adherence and take their medication as directed. A positive relationship between the patient and provider can promote adherence (McNicholl, 2008).

There is an urgent need to develop strategies to improve adherence to ART. Accepted wisdom, is that if the ART adherence rate less than 90-95%, treatment can fail and the virus may become resistant (Chalker et al., 2009). Achieving adherence rates of above 80% is difficult, even in resource rich countries (WHO and MSH, 2011). Therefore, the ability to accurately monitor adherence rates for ART and immediately address problems is crucial. All the countries should use qualitative methods to investigate the reasons for good and poor adherence at both patient and facility level as a step towards developing appropriate strategies for improvement (Chalker et al., 2009).

The success of potent ART for HIV infection is primarily determined by adherence. The evidence suggest that the treatment supporters, DOT, mobile phone text messages, diary cards and food rations can effectively increase adherence in Sub-saharan Africa (Barnighausen et al., 2011). However, some interventions are unlikely to have large or lasting effects and others are effectively only in specific settings (Barnighausen, Chimbindi, Peoples and Haberer, 2011).

Dramatic increases in the evidence-base for intervention approaches to support ART adherence have resulted in numerous reviews, synthesis, guidelines and recommendations (Amico and Orrell, 2013). Leading recommendations for the process of intervention development and strategies to consider in working with individuals, communities and systems are provided in order to move systematically toward the identification of what kinds of intervention work best for whom and when, attending to both intervention outcomes and drivers of observed effects or lack of effects in controlled research is critically important (Amico and Orrell, 2013).

One of the challenges in the management of HIV disease is incorporating our knowledge of the factors affecting treatment adherence into everyday practice (Turner, 2002). Recently, there have been calls to strengthen community-based support initiatives for patients on ART (Harries, Zachariah, Lawn and Rosen, 2010; Miller, Kethlapile, Rybasak-Smith and Rosen, 2010). Amongst adults receiving ART, social and community support have been associated with improved adherence and treatment outcomes (Igumbar, Scheepers, Ebrahim, Jason and Grimwood, 2011).

Although the availability of ART has increased rapidly to reach over 3 million people in low and middle income countries, coverage remains low as only 31% of people in need were receiving ART in Sub-Saharan Africa (Nakanjako, Colebunders, Coutinho and Kayma, 2009). ART scale up needs to continue to grow to meet the need for universal access and keep pace with or exceed the new HIV infections (Nakanjako et al., 2009). These calls for strategies that will have greatest impact on the reduction of opportunistic infections, toxicities and early mortality after ART initiation as well improve adherence, clinical immunologic and virologic responses, patient retention in ART programs and overall quality of life people living with HIV/AIDS (Nakanjako, Colebunders, Coutinho and Kayma, 2009).

Long term retention of patients in treatment programs, a prerequisite for achieving adherence at all, has received far less attention (Rosen, Fox and Gill, 2007). Perhaps because most large scale treatment providers have few resources available to track missing patients, most studies treat patient attrition as a side issue and focus solely on describing those patients who are retained (Rosen, Fox and Gill, 2007). Attrition from ART programs is generally divided into four categories: death of the patient, loss to follow-up a catch, other transfer to other facilities and continue ART, treatment discontinuation raises some of the same concerns about drug resistance that incomplete adherence does and even worse, negates much of the benefit sought by those implementing treatment programs (Rosen, Fox and Gill, 2007).

Timely linkage to ART care is critical for reducing HIV related morbidity, mortality and transmission (Govindaramy, Kranzer and Ford, 2013). A combined package of interventions such as integration of services, medical and food incentives, intensified counselling and peer support are found to be effective in the pre-ART and ART period

might be effective for reducing attrition in both periods (Govindaramy, Kranzer and Ford, 2013).

Intensive monitoring is required especially during the first critical months after initiating treatment. Patients should be seen frequently to assess adherence and identify the need for strategies to improve and support adherence (AIDSinfo, 2014). Strategies include development of goals in the treatment plans of all patient needs, integrating medications into daily life routines as well multifaceted approaches such as the regimen related to the system of education, behaviour and support directed to children and families (Govindaramy, Kranzer and Ford, 2013).

2.2. FACTORS AFFECTING ADHERENCE TO ART

2.2.1. Introduction

The treatment outcomes however may get hampered by suboptimal adherence to ART (Sahay et al., 2011). Adherence optimisation is a concrete reality in the wake of universal access and it is imperative to learn lessons from various studies and programmes (Sahay et al., 2011). Social, behavioural, biological and programme related factors arise in the context of ART adherence optimisation, while emphasis is laid on adherence retention of patients under the care umbrella emerges as a major challenge (Sahay, Reddy and Dhayarkar, 2011). An in-depth understanding of patient health seeking behaviour and health care delivery system may be useful in improving adherence and retention of patients in care continuum and programme (Sahay, Reddy and Dhayarkar, 2011).

ART has changed HIV infection from fatal disease to a chronic illness which can be managed much like other chronic illness (Colvin, 2011). The importance of high levels of adherence to ART in the management of HIV is well documented and is critical in preventing the development of viral resistance and subsequent immunological and clinical failure of ART (Ross et al., 2011). Multiple issues have been identified which may affect adherence including patient factors, treatment factors and contextual factors (Ross, Campbell and Ogunbanjo, 2011).

Adherence to ART can be influenced by characteristics of the patient, the regimen, the clinical setting and the provider/patient relationship. To assure adherence, it is critical that the patient receive and understand information about HIV disease, the goal of therapy and the specific regimen prescribed (AIDSinfo, 2013).

The clinical efficacy of ART in suppressing the HIV virus and improving survival rates for those living with HIV has been well documented (Kredo et al., 2009). However successful ART is dependent on sustaining high levels of adherence. The minimum level of adherence required for antiretroviral drugs to work effectively is 95% (Lima et al., 2008). Although more potent antiretroviral regimen can allow for effective viral suppression at moderate levels of adherence, no or partial adherence can lead to the development of drug resistant strains of the virus (Knafl et al., 2010). Adherence to ART is influenced by factors associated with the patient, therapy and the relationship of the patient with health care provider, patient related factors include socioeconomic status (Atkinson et al., 2009)

The patient ability to adhere to medication is greatly influenced by both individual and environmental factors. Several studies have shed light on the factors affecting adherence, highlighting socio-demographic, cultural, economic, health systems and treatment related factors (Willard and Angelino, 2008). Many barriers to adherence are common to both developed and developing countries such as fear of disclosure, hence to benefit from ART, it is important to identify adherence behaviour, understand the conditions that lead to non-adherence and develop strategies and social policies to maximise long-term adherence (Wasti et al., 2012).

Worldwide regardless of the illness or treatment many people do not take medication correctly. A study in Brazil showed that cumulative incidence of non-adherence to be 36.9%. Adherence among patients in Soweto, South Africa was 88% in Cape Town, 63% of patients maintained adherence levels of 90% (Alagaw et al., 2013). Consistent factors for poor adherence include stress, substance use, regimen complexity, self-efficacy for medication taking and depression. Social support has been consistently associated with decreased adherence and a patient who does have social support is less likely to continue their treatment with optimal requirement (Alagaw et al., 2013).

Researchers are however becoming increasingly concerned about antiretroviral levels in South Africa since the national rollout commenced in 2004 (Kagee, 2008). It is widely accepted in the scientific community that an adherence level of at least 90% is necessary to suppress the virus sufficiently, to increase CD+4 T cells count to avoid the risk of mutation and to prevent the development of drug resistant strains and drug failure (International Health Institutions, 2011; WHO, 2011). In practice it means that patients

must be motivated to commit to life-long therapy and to maintain extremely high levels of adherence to therapy over many years. Studies reporting high levels of adherence to therapy should however be interpreted with caution and cannot be generalised to the broad population of ARV users after national scale-up of treatment (Kagee, 2008; WHO, 2011). The rates of drug adherence among ARV users are probably similar to those of patients taking drugs for other chronic ARVs (Skhosana et al., 2006). If adherence to ARVs is indeed this low, we may have increasing problems with ARV resistance and will be faced with great challenges in terms of the management of HIV infection in future.

Although various studies in Sub-saharan Africa have shown that high levels of adherence, viral suppression and good clinical outcome are achievable in these resource limited settings (San Lio et al., 2008; Nachega et al., 2006; Nachega et al., 2009, Mills et al., 2006; Hardon et al., 2007; Fox and Rosen, 2010), it is very challenging to adhere to ART and strict adherence is not common (Montessori et al., 2004).

The following are barriers or components that significantly contributed to non-adherence:-

2.2.2. PRACTICAL, ENVIRONMENTAL AND SERVICE RELATED PROBLEMS

ARV users who had to take a large number of pills at different times in the day struggled significantly more to obtain optimum adherence than users on an easier treatment regime (Aspeling and Van Wyk, 2008; Kip et al., 2009; Nachega, 2009). Another common regime-related reason for non-adherence was the side –effects at one or other stage in their treatment history of those ARV users who reported side-effects, 64% could not reach the optimum 90% or higher adherence level. Many simply stopped their medication until they felt better. Treatment regimes, their possible side effects and ways to cope with these must be discussed with every patient on ARVs (NIH, 2011).

The hidden costs involved in being on ARVs also proved to be a problem for many ARV users. It is of great concern that 37% in the non-adherence group and 21% in the adherence group often did not have food enough to eat and could therefore also not take ARVs especially those medications with food requirements. 52% of ARV users who could not reach a 70% adherence level, indicated that they live in poverty and often go hungry. Finding transportation or money for transport to collect their ARVs posed a

further problem for 30% ARV users in the non-adherence group, and 14% in the optimum adherence group (Aspeling and Van Wyk, 2008; Kagee, 2008; Nachega, 2009).

The results of the adherence study further indicated that the health care system is often failing to sustain ARV treatment: 20% of ARV users in the non-adherence group reported encountering stock-out and having to return home without collecting their medication often only being able to go back a week later due to transport problems or because they could not get time off from work. An average clinic visit in South Africa consumes a full working day, according to Wilson and Fairale (2010). Only 4.5% of ARV users in the optimum adherence group gave stock-outs as reasons for skipping dosages. Many ARV users related stories about health care workers being on strike or being on holiday without backup plans or personnel to assist them.

Stock-outs and unsustainability of ARVs for whatever reason is unacceptable and the answer does not lie in putting fewer people on ARVs- the solution should be sought in supporting more people more effectively. Some suggestions made in the literature are more mobile ARV clinics, sites closer to where people live work. More nurse-based treatment centres, 3 month prescriptions for treatment experienced patients who show optimum adherence and follow-up home visits (Kip et al., 2009; Van Dyk, 2007)

2.2.3. HEALTH WORKER SUPPORT

About 20% of ARV users in the non-adherence group said that they were not properly prepared by health workers to go on ARVs. The health workers should not underestimate the importance of treatment preparation programmes; evidence of readiness and ability to adhere; individualised action plans to rectify problems, regular patient follow up and assessment of adherence with every clinic visit (Weidle et al., 2006; Kip et al., 2009).

Health care workers should strive to establish rapport with their patients because good health provider/patient relationships have been found to improve adherence to ART by some authors (Aspeling and Van Wyk, 2008). A supportive health provider/patient relationship is another important factor in improving ART adherence studies have reported a positive relationship between provider support and adherence. This involves supporting the patient throughout his treatment, by providing motivation, routine adherence counselling, involving the patient in treatment decisions, open communication,

compassion and taking regimen inconveniences into account to improve adherence (Aspeling and Van Wyk, 2008).

The health worker characteristics and clinical settings affect patients adherence overall patients satisfaction with the level of care has been found to correlate with increased adherence (Gauchet et al., 2007). The aspects of clinical setting that could positively influence adherence are a friendly and supportive environment, non-judgemental health care provider's convenient appointment schedule and confidentiality in service provision (Simoni et al., 2006). Long waiting times, poor staff attitudes, intermittent drug availability and other procedural barriers decrease patients adherence to ART and also results in poor clinic attendance (Hawkins et al., 2007; Iliyasu et al., 2005).

Continuous access to health care services and medications by patients also influences treatment adherence (Hawkins et al., 2007). The patient-provider relationship is another factor that has been well researched in terms of adherence to ART, good patient provider relationship results in patients trust and confidence in the provider which in turn influences good adherence (Ganchet et al., 2007). The burden posed by adherence is not limited to the patient alone but extends to the health care provider, therefore, the relationship between patient and the health provider should be that of therapeutic alliance where both parties work toward a common goal of improving the health of the patient. This is why frequent change in health care providers is associated with poor adherence (Glass et al., 2010).

2.2.4. PSYCHOSOCIAL FACTORS

Various personal and psychosocial factors impacted negatively on ARV adherence. Barriers to adherence of great concern are alcohol and depression of those ARV users who defaulted on their treatment, 21% said that they often forgot to take their ARVs when they used alcohol or when they felt depressed respectively. In the optimum adherence group, only 51% and 4,5% participants gave alcohol use or depression as reasons for non-adherence (Kagee, 2008; Kip et al., 2009).

Studies have shown that the mental health of the patients has an influence on their adherence behaviour (Zuurmond, 2008; Reisner et al., 2009; Murphy et al., 2005). Aggravated levels of depression, anxiety, distress, despair have been associated with decreased adherence (Reisner et al., 2009). A patients accepting attitude towards

medication and belief that medication will improve health status is associated with increased adherence (Reisner et al., 2009; Castro, 2005; Simoni et al., 2012).

Depressive symptoms and other psychological issues could be attributed to previous abuse and this could affect adherence. While psychological factors have proved to be more stable predictors of adherence behaviour, the varying rates of tests significance call for more studies to establish how well the factors relate to adherence.

2.2.5. ARV LITERACY OR KNOWLEDGE

Knowledge and clear understanding of the ARV treatment and the importance of adherence, contributed significantly to adherence. The knowledge about the increased CD4 count and viral load had a positive effect of adherence. The level of education is associated with high adherence, however, the patients missed doses due to problems with work schedules, depression and believing in medication efficacy, telling these patients about the improved adherence. The actual baseline CD4 count is associated with adherence. The probability of missing doses was reduced in patients with a higher CD4 count (Aspeling and Van Wyk, 2008; Kip et al., 2009). Low level of education may impact negatively on some patient's ability to adhere while high level of education has positive impact (Nakiyemba et al., 2005).

2.2.6. STIGMA AND DISCRIMINATION AS BARRIER TO ADHERENCE

Stigma, discrimination and lack of social support are often mentioned in the literature as some of the main reasons why ARV users hide their status, as well as their ARV taking from colleagues, friends and others (Aspeling and Van Wyk, 2008; Dlamini et al., 2009; Tolosari, 2009). Some, especially women, kept their HIV status as well as their ARV taking behaviour a total secret from their sex partners. Of those who kept it secret from their sex partners, only 21% could reach optimum adherence levels. Fear of blame, rejection, losing their children, violence and even being killed were some of the reasons given by participants for their silence (Aspeling and Van Wyk, 2008).

The requirement that people will only be accepted into a treatment programme if they disclose their status to a friend or a family member who will support them is a barrier to many people in Africa to take up ARV treatment. McNeil further found that members of ARV support groups (all women) practised highly selective disclosure because they

feared for their lives should it become general knowledge in their communities that they are HIV-infected (McNeill, 2009).

Disclosure of HIV status is necessary for behaviour change to reduce new infections, access ARV and to reduce stigma and discrimination (UNAIDS, 2013). It also helps the patients to access formal support through government services, community and non-governmental organisations. Further it is also associated with condom use and negatively associated with multiple and casual partners (Mullan, Uys and Holzemer, 2009). In terms of adherence to ART disclosure is essential because people have reported missing treatment doses because of lack of treatment supporter. Although disclosure may include stress due to perceptions of discrimination by family, community and friends, which becomes a barrier to health care and social support (Skhosana et al., 2006). Socioeconomic consequences include rejection and abandonment by family members providing financial support and support by friends and neighbours. Although disclosure is inconsistently associated with adherence, disclosure to family should be especially encouraged because patients have mentioned presence of family as an enhancer of disclosure (Skhosana et al., 2006).

Many studies attribute low disclosure to fear of stigma (Zuurmond, 2008; Hardon et al., 2007; Rao et al., 2007) which can in turn lead to exclusion by loved ones (Wanjohi, 2009). Stigma concerns are informed by a person's attitude towards HIV and PLWHA. Perceptions of other people's attitude towards HIV and experiences with expressions of discrimination directed towards self or other PLWHA (Rintamaki et al., 2006).

Studies such as that of Talam et al., 2008, have found that lack of adherence is attributable to stigma. Patients who are subjected to stigma reported being tired of taking medication in a study by Wanjohi (2009).

2.2.7. PATIENT FACTORS

Patient factors can be demographic, psycho-social, socioeconomic and/or clinical in nature (Patel et al., 2010). Most demographic factors such as gender and ethnicity, alone do not seem to predict adherence (Patel et al., 2010). Depression and other psychiatric illnesses have been shown to be related to poor adherence to ART regimens as well as having a significant impact on the overall quality of life for PLWH in both high-income and resource-limited countries (Amberbir et al., 2008; Byakika-Tuslime et al., 2009).

In addition, both perceived and experienced stigma have profound effects on the mental health of PLWH and those caring for them and thus can negatively influence adherence to treatment in Western settings as well as in Sub-Saharan Africa and India (Cluver, Gardner and Operario, 2008; Kip, Ehlers and Van der Wal, 2009). Patient reported that perceptions of stigma and fear of discrimination prevented them both from purchasing and taking their medication. They were less likely to disclose their status to colleagues, friends and others. Non-disclosure may lead to patients taking their ARV medicines secretly and irregularly because of inadequate social support and encouragement (Hardon et al., 2007).

Active alcohol or substance abuse also makes it more difficult for patients to adhere to treatment (Weiser et al., 2006; Spire, Lucas and Carrieri, 2007).in a recent meta-analysis of 40 studies, alcohol drinkers were about twice as likely to be adherent compared with abstainers (Hendershot et al., 2009). In a similar study in Botswana, nearly 40% of patients surveyed admitted to missing a dose because of alcohol consumption (Kip, Ehlers and Van der Wal, 2009).

Patient-level socioeconomic factors such as income and education, have been shown to contribute to suboptimal adherence to treatment. Cost of transport and medication co-pays are consistently noted as barriers to adherence. Patients have expressed difficulty balancing their need for transportation to the clinic and any medication costs against the need to pay for food, school fees and other necessities for themselves and their families and as a result have missed pharmacy pickups and other follow-up appointments (Tuller et al., 2009; Hardon et al., 2007).

Other factors reported to have a significant effect on adherence include unemployment, lack of effective social support networks, unstable living conditions and/or incarceration (Beyene et al., 2009; Kidder et al., 2007; Small et al., 2009).

Illiteracy and low level of education can also lead to an inadequate understanding about the effectiveness of medications, resulting in reduced adherence to treatment. Clinical factors such as opportunistic infections may also interfere with adherence because of increased risk of drug side effects due to opportunistic infections related treatment. Pregnant women who are living with HIV tend to be more adherent to ART during pregnancy for fear that they will transmit the virus to their unborn child. The adherence

rates have been shown to decline however, during the period after delivery (Mellins et al., 2008; Park, Tochuku and Grigoriu, 2007).

Although it is well known that a patient's belief, trust and confidence in his or her therapy and health care provider is positively associated with ART adherence in United States based settings (Beach, Keruly and Moore, 2006). Recent evidence from resource limited settings suggests that an understanding of patient's medication regimen and the relationship between non-adherence and disease progression predict better adherence (Crane et al., 2006; Watt et al., 2009).

In a study conducted in Uganda, near perfect adherence was motivated by a belief that ART was responsible for keeping the patients healthy and by a desire to stay alive to look after the well-being of family members (Crane et al., 2006). Similarly, in Tanzania the belief in therapy came from the patient's own experience of transitioning from debilitating illnesses to improved health and function after initiating therapy (Watt et al., 2009).

2.2.8. SYSTEM FACTORS

Patient adherence to treatment may be influenced by health system barriers, such as access to the facility, the patient- provider relationship, and support services that are incorporated into care. One common challenge faced by HIV treatment programs in resource-limited settings, is ensuring a regular and timely supply of medication to patients. An unreliable supply of medication can severely depress patient adherence rates (WHO, 2009b).

In Uganda, patients reported the price of medication as the principal challenge of sustaining treatment (Byakika-Tusiime et al., 2009; Crane et al., 2006), a finding consistent with those reported in other African countries and India (Hardon et al., 2007).

Poor adherence to treatment can also be the result of the lack of access to the health facility to pick up medications due to distance to the facility, constrained facility hours and waiting times (Hardon et al., 2007; Kip, Ehlers and Van der Wal, 2008). Over half of the patients surveyed in a rural Indian clinic travelled over 200km to attend their appointments (Caulbeck et al., 2009). Similarly, patients in rural Botswana reported clinic wait times of up to 12hours (Hardon et al., 2007).

Although existing data are limited, aspects of clinical environment may be associated with improved adherence to treatment. In the United States, a friendly, supportive, and non-judgemental attitude of health care providers and facility staff has been shown to contribute to improved adherence to treatment (Beach, Keruly and Moore, 2006). Less is known about how the clinic environment affects ART adherence in resource-limited settings.

In Tanzania, however, the inclusion of PLWH staff reinforced the benefits of ART and motivated patients to adhere to medication regimens and live with HIV long-term (Watt et al., 2009). In resource rich settings where patients have a single provider, a better patient-provider relationship is associated with higher adherence (Beach, Keruly and Moore, 2006).

The availability of social support services, such as counselling or peer support groups in resource rich and limited settings, also helps patients adhere to treatment better through a deeper understanding of their disease and a more trusting environment (Watt et al., 2009). Support of access to food and other nutritional support have also been found to be a strong predictor of adherence in more resource-limited settings (Cantrell et al., 2008; Mwadime and Castleman, 2009).

Access to health care can be said to be a function of service availability, affordability and acceptability of the services (Moshabela et al., 2011). The costs of transportation to health care facilities continue to adversely affect adherence, lack of transport resulted in them failing to visit the health facilities for refill. The further the distance, the higher the transport cost and greater the risk of missing visits to collect drugs. Reducing the distance to the health facility has been shown to improve adherence. A study by Moshabela et al., 2011 found improved adherence rates for patient's adherence rates for patients on ARV who were down referred as opposed to their hospital users (compatriots). The down referred clients have less median transport costs and did not miss any clinic appointments.

Waiting times of up to 5-6hrs consume a lot of time for clients and could be frustrating for clients who have to report to work. Losing such long work hours can be a problem for ARV users whose employers do not know they are HIV positive and are on care (Hardon et al., 2007). Humanised care in health services is a critical element in adherence (Zuurmond, 2008). At the quality of care is a trusting relationship between health care

providers and the patient that is built on the understanding that each client is different and requires an individualised approach (Friendland, 2006).

Patient report improved adherence as a result of having a cordial relationship with health care providers (Wanjohi, 2009). Communication is critical in not only nurturing this trust but also providing adequate information on the medication and the importance of adherence. Patients who received health education on how to take drugs register better adherence (Filho et al., 2008). Communicating to patients on the medication increases their ability to follow ARV treatment and increases their adherence (Wanjohi, 2009).

2.2.9. COMMUNITY FACTORS

A supportive community or interpersonal environment is critical for PLWH. High levels of stigma within the community due to lack of education and awareness of HIV can lead to reduced levels of adherence to treatment. Community members from resource-limited settings in Asia and Africa reported fear and disgust of PLWH in their communities who were at the end stages of the disease, as well as social isolation and public shaming of patients and their families (Maman et al., 2009; Watt et al., 2009).

2.2.10. MEDICATION FACTORS

Studies looking at early and longer term adherence have consistently shown that when patients experience side effects, they tend to stop treatment or take medication irregularly (Nachega et al., 2009). Concurrent HIV and TB therapy is associated with increased risks of adverse drug effects such as nausea, gastrointestinal disturbance, peripheral neuropathy, cutaneous reactions, renal toxicity and potentially fatal liver toxicity. These toxicities may require therapy discontinuation, resulting in greater immune suppression and predisposition to worsening TB with rifampicin has been shown to reduce the blood levels of many ART drugs and may result in treatment failure even with high levels of ART adherence (Kwara et al., 2005).

According to report by Van Dyk et al (2007) the main reasons mentioned by patients for non-adherence were taste 16% and child refusal 16% for ritonavir and taste 9% and interference to medication schedule with lifestyle 10% for nelfinar 67%, side effects are also usually associated with irregular medication intake or stopping medication altogether.

2.2.11. CULTURAL AND SPIRITUAL BELIEFS

Disease and illness may be explained in cultural terms that can be in respect of explaining the cause and its expected course, however, introduction of effective treatment may change the cultural interpretation of that disease. Introduction of ART has affected the social explanation of HIV/AIDS and suggests that it can lead to reduction of stigma and increase uptake of HIV testing and ART (Wilson and Fairall, 2010). In South Africa, cultural beliefs surfaced as a barrier to adherence because patients expressed more confidence in traditional healers than Western medicine. Although patients in this study were on ART, they still said that they preferred traditional medicines because it cures AIDS whereas Western medicine merely slows the process down. This may result in interruption of ART. Participants in South African studies, had turned to their religious beliefs. One participant believed that God would heal her and she interrupted treatment as a result.

Patients have been known to access health care generally and ART specifically with the alternative or complementary health practitioners (Wasti et al., 2012). Studies in Uganda, Zambia, the United States America, Canada, Australia and India found that the use of complementary and alternative medicines is associated with poor adherence to ART (Wasti et al., 2011). A survey of 1,667 HIV-infected persons in 4 regions in India found that 41% reported using some form of traditional medicine although only 5% believed that traditional medicine was more effective than allopathic ART (Wasti et al., 2012). Another study from Southern India showed that at some point of time patients switch to community doctors (Wasti et al., 2012). The alarming issue in this study was that community doctors had many misconceptions regarding HIV transmission diagnosis and treatment.

2.2.12. POVERTY AND UNEMPLOYMENT

Most studies on adherence tend not to focus on the role of poverty to adherence to treatment. In fact it may affect the ability to access treatment because of the cost of transport, cost of user fees and tests and supplies. Taking medications with dietary modification may also be challenging in terms of preparation of food especially if there is no electricity or safe water. In the presence of these difficulties, even the person living in poverty who fails to take medications as prescribed is categorised as not adherent without attempting to overcome barriers associated with poverty. In places where ART is free, the cost of transport is associated with poor adherence (UNAIDS, 2010).

Most studies conducted in poor settings overlook how direct or indirect economic burdens borne by patients affect their ability to access a steady supply antiretroviral and take them on time. Such burdens may include absenteeism from work, the cost of elder or child care during medical visits, the cost of tests and supplies (Castro, 2005). Although these costs often translate into difficult household decisions about who eats, who works or who goes to school. In resource poor countries many people live below poverty line and there is often no medical insurance. The United States of Americas income of less than 50 000 US Dollar per annum, led to poor adherence. Lower income is a predictor of adherence (Golin et al., 2004). Adherence is associated with correct knowledge of side effects and correct knowledge which perceived effectiveness of ART among other things (Wang and Zunyou, 2007).

Studies in Uganda and Tanzania reported that transportation costs are considered serious obstacles to taking ART (UNAIDS, 2010). This has implications not only for day-to-day adherence but also losses to follow-up (UNAIDS, 2010).

Determinants of adherence for HIV-infected persons in Sub-Saharan Africa were examined with ethnographic research methods at HIV treatment sites in Jos, Nigeria, Dar es Salaam, Tanzania, Mbarara and Uganda. The findings indicate that individuals taking ART routinely overcome a number of deliberate strategies aimed at prioritizing adherence: borrowing and begging transport funds making impossible choices to allocate resources in favour of treatment and doing without (UNAIDS,2010).

2.2.13. ALCOHOL AND DRUG ABUSE

Alcohol and drug abuse are repeatedly cited in the literature or associated with adherence. HIV positive patients who use drugs and have lower socioeconomic status are likely to have poor adherence to medication and are willing to adhere to long and complex treatment regimens and access medical care late (Aspeling and Van Wyk, 2008). The problems of poorer adherence must therefore be anticipated in alcohol and drug users and that these patients need to be helped to change the kind of behaviour.

Studies have shown that young people who are living with HIV are not averse to alcohol and substance abuse with increased abuse being observed among youth who are depressive (Garcia et al., 2011). Alcohol and substance abuse results in impaired decision making and is critical predictor of adherence among young people (Reisner et al., 2009;

Braithewaite et al., 2008; Murphy et al., 2005). Non-adhering patients have put alcohol as one of the reasons why they missed taking their doses (Wanjohi, 2009).

Significant association between alcohol use and adherence were reported in studies among adult HIV patients by Rintamaki et al., 2006, who found that patients who were treated for alcohol/drug abuse had lower adherence rates (63%) as compared to those who were not treated from any alcohol /drug related issue (70.3%).

Drug abuse and alcohol consumption are factors that further threaten proper adherences to ART. Studies have consistently shown that active alcohol use and substance abuse makes it more difficult for patients to adhere to treatment (Reda and Biadgilign, 2012). In Botswana nearly 40% of the patients surveyed admitted missing a dose because of alcohol consumption. Similar studies also indicate that alcohol is highly related to reduced adherence (Reda and Biadgilign, 2012). A systematic review in 2009 found that HIV/AIDS patients that used alcohol are 50% to 60% more likely to adhere less to their prescribed medications (Reda and Biadgilign, 2012).

2.3. STRATEGIES USED TO IMPROVE ADHERENCE TO ART

Interventions to improve adherence include a range of techniques borrowed from psychotherapy literature. Negative beliefs such as scepticism about the efficacy of ART, concerns about medication effects or adverse drug events and inaccurate ideas about using ART intermittently all predict non-adherence (Koenig et al., 2008). With the increasing access to ART in Sub-Saharan African HIV positive populations, it is important to find additional simple, effective and feasible methods of improving and maintaining adequately high levels of adherence (Kunutsor et al., 2012). These strategies included a combination of elements such as counselling, group education, leaflets, late attendance tracing and adherence diaries was implemented for an ART (Kunutsor et al., 2012).

Promoting adherence sufficient to achieve viral suppression helps to create optimal outcomes in both individual and public health. The current standard of care in promoting adherence is patients contact with health care providers (Finitsi, Pellowski and Johnson, 2014). A number of reviews support the efficacy of behavioural interventions to promote ART adherence (Barnighausen, Chaiyachati, Chimbindi, Peoples and Haber et al., 2011) yet these interventions have diverse approaches and variable financial costs.

HIV has now become a manageable chronic disease. The treatment outcomes however may get hampered by suboptimal adherence to ART. Adherence optimization is a concrete reality in the wake of universal access and it is imperative to learn lessons from various studies and programmes. Social, behavioural, biological and programme related factors arise in the context of ART adherence. Optimization, while emphasis is laid on adherence retention of patients under the care umbrella, emerges as a major challenge (Sahay, Reddy and Dhayarkar, 2011).

An in-depth understanding of patient's health seeking behaviour and health care delivery systems may be useful in improving adherence and retention of patients in care continuum and programme (Sahay et al., 2011).

Overall areas of interventions to optimise ART adherence vary, however, utilisation of health service by the beneficiaries and scale-up of ART programme. At the individual level, enhanced counselling could be a dynamic tool to optimise adherence to ART. It is important not only to focus on pill taking behaviour of patient but it is equally critical to retain patients under the HIV treatment continuum beginning from the pre-ART registration. Various opportunities for counselling intervention are ARV initiation, preparing for initiation, patients stable on ART and finally ageing with ART (Sahay et al., 2011).

Strategies to encourage ART adherence may save direct health costs as well as improve individual health outcomes. Nachega and colleagues demonstrate that increasing resources for adherence strategies is associated with substantial cost savings for the entire health system (Nachega et al., 2010). People living with HIV/AIDS who have access to behaviour interventions such as reminder messaging, education and social support show improved adherence to antiretroviral therapies. Health care providers should develop follow-up services necessary for successful adherence. Health care providers should focus on improving communication skills fostering trust and working compassionately with their clients (Nachega et al., 2010).

Health care providers cannot predict patient adherence to therapy, but they can help patients overcome barriers to adherence and take their medications as directed. Patient belief that HAART is effective and a positive relationship between patient and provider can promote adherence. Strategies to improve patient adherence can be grouped into three categories related to the patient, clinic, health team and regimen. Regimens should be

simplified as much as possible, reducing the number of pills, their frequency and dosing restrictions as well as seeking to minimise drug interactions and side effects (McNicholl, 2008).

New successes in HIV prevention research have been tempered by suboptimal adherence. There is a critical need to define practical and effective adherence monitoring strategies to maximise their benefit. Health care providers should ensure that ART doses fit into patients daily routines, probable side effects should be explained and how to hand these when they occur (Nachege, Uthman, Mills and Quinn, 2012).

The practitioners described several mechanisms and interventions through which they seek to support clients in adhering to ART. These interventions differ per setting, but there is overlap and interventions between providers and clients are central to most of them (De-Kok, 2012).

Before writing the first prescriptions, the clinician should assess the patients readiness to take medication including information such as factors that may limit adherence and additional support necessary, the patients understanding of the disease and the regimen and the patients social support, housing, work and home situation and daily schedules. Prescribing regimens that are simple to take, have a low pill burden and low frequency dosing, have no food requirements and have a low incidence and severity of adverse effects will facilitate adherence (Rabound, Wamsley et al., 2011). Given that effective response to ART is dependent on good adherence, clinicians should identify barriers to adherence such as patients schedule, competing psychosocial needs, learning needs and literacy level before treatment is initiated.

Significant progress has been made regarding determinants measurements and interventions to improve adherence to ART. Given the various assessment strategies and potential interventions available, the challenge for the treatment team is to select the techniques that provide the best fit for the treatment setting, resources available and patient population. The complexity and the importance of adherence encourage clinicians to continue to seek novel, patient centred ways to improve adherence and to tailor adherence interventions (Nakanjako, Colebunders, Coutinho and Kamya, 2009).

The strategies to improve adherence to ART include:-

2.3.1. MOBILE PHONE TECHNOLOGY

With increasing availability of mobile phones worldwide, mobile text messaging is a feasible option for improving treatment adherence for ART in under-resourced settings (Sharma and Agarwal, 2012). Mobile phone-based programmes to promote adherence cannot only gain wider geographical access, but also surmount barriers such as stigma, privacy loss and transportation limitations associated with traditional interventions (WHO, 2012).

The reminders received on a weekly basis have been found to be the most effective intervention in this context. The use of an interactive voice response system may be a consideration in the design of suitable adherence reminders, provided adequate training is given to the participant at the beginning of the intervention. For this intervention to succeed, it is important to design the message in the local language. However, by applying mobile phone text messaging as a method to improve adherence to ART for as many individuals as possible, and reserving more resource-intensive interventions for the patients most in need of them, the overall cost effectiveness of these interventions could increase (WHO, 2012).

Mobile phone text messages for improving adherence to ART, had a positive effect. This effect is stronger in women and those with a primary education. Weekly and interactive messages are also more effective. While there is widespread support for text messaging, the guidelines should be specific about what design text messaging interventions should be implemented (Horvath, Azman, Kennedy et al., 2012). Text messaging has a significant effect on adherence to ART, the use of interactive weekly text messaging to boost adherence to ART to clients with at least a primary level of education is recommended.

The efficacy of ART depends on the patient adherence to a daily medication regimen, yet many patients fail to adhere at high enough rates to maintain health and reduce the risk of transmitting HIV. Greater engagement of the recipient with the message may take place when the recipient acknowledges or replies to the sender. Another possible factor is the extent to which bi-directional communication bolsters the patient provider relationship, increasing trust (Finitsi, Pellowski and Johnson, 2014). Evidence suggests that patients

are better able to manage their care and are more likely to achieve adherence goals when they perceive their providers care about and like them. It is possible that messaging back and forth with clinic staff sufficiently evokes a relationship dynamic as to further bolster the extent patient provider relationship (Finitisi, Pellowski and Johnson, 2014).

Although cellular phones typically have a built in function allowing users to set multiple alarms, messaging paired to ART dosage lowers this barrier even further. Electronic messaging interventions can help people living with HIV/AIDS achieve enhanced adherence to ART and improved clinical outcomes. The simple fact that such interventions can be disseminated using technology that even in the developing world is increasingly main-stream makes it exceedingly cost-effective to implement, this is in addition to the savings in medical cost off set secondary to increased ART adherence. There is good reason for optimism about text messaging interventions to promote ART adherence (Wise and Operario, 2008).

Mobile phone technology using text messages has been shown to be useful to improve adherence rate (Shet et al., 2010; Lester et al., 2010). However, patients sometimes do not receive the messages or if they do, they ignore them (Sidney et al., 2012). Previous studies reported that participants prefer interventions that not only act as reminder but also as a useful source of information on HIV/AIDS as well as allowing them to enquire about their illness or simply to communicate with their providers (Shet et al., 2010). A phone call intervention (Reynolds et al., 2008) has been shown to have promising results in developed countries and has been suggested to be used to improve adherence to ART in resource-limited countries. China, currently the world's largest mobile phone market (ICT Statistics, 2011) and approximately 76% of the population now own a mobile phone (Huang et al., 2012).

A subsequent randomized trial in the United States of America (USA) (Reynolds et al., 2008) assessing the effect of an 8 minute landline telephone call among treatment naïve showed significantly high adherence rate at week 64 in the telephone group as well as being able to maintain high adherence rates over time. Recently, mobile technology for health such as mobile phone use, is a new promising innovative option in health care (Kunutsor et al., 2010). It can surmount barriers such as stigma, loss of privacy and transportation limitations associated with traditional interventions (Shet et al., 2010).

Mobile phone technology can offer medication reminders via SMS (Short message services), voice call, dissemination of information and communication with health workers. However some studies (Sidney et al., 2012; Manoharan et al., 2012) have reported that a reminder can easily be ignored. Patients prefer to obtain information and be given opportunity to communicate with health workers. A weekly mobile phone message over 12 months in Kenya (Lester et al., 2010) was found to improve patient adherence rates. While many electronic devices have been invented primarily to improve adherence rates, they showed no improvement in the quality of life (Wu et al., 2006). A recent intervention study investing home visits and a telephone intervention conducted in China (Wang et al., 2010) reported improvement of adherence rate and quality of life for physical, psychological, social and environmental domains. Previous studies (Shet et al., 2010) reported that patients prefer interventions which not only act as a reminder but also provide a source of useful information on HIV/AIDS; as well as allowing them to communicate with health care providers. The WHO guidelines recommended using SMS (short message services) as part of a package of activities to support adherence to ART. This meta-analysis examined how SMS can be optimally used to promote successful adherence- 8 randomised controlled trials from the USA, Brazil, Kenya and Cameroon investigated 9 types of SMS activities. Overall text messaging significantly improved the average outcome. Only 3 of the 8 studies used virologic suppression as an outcome measure, importantly these studies did show an improvement. SMS is a promising activity for supporting adherence although the effect on adherence is modest.

Many mobile health interventions have been based on text messaging an inexpensive way to enhance communication between patients and health care personnel (Mukundi, Bahadur and Murray, 2010; Mbuagbaw et al., 2013). Evidence from two Kenyan trials suggests that mobile phone text messaging can improve adherence to ART, reduce viral load and reduce treatment interrupting (Lester et al., 2010; Pop-Eleches, 2011), however a third trial in Cameroon did not show significant improvement on adherence (Mbuagbaw et al., 2013).

2.3.2. Directly Observed Treatment Short Course (DOTS)/ Directly Administered Antiretroviral Treatment (DAART)

Up to 70% of people who comply with their medication regimens do so because they see the provider as a caring advocate (Tabor and Lopez, 2004). Supporters of DOT say that

individuals benefit from the direct promotion of adherence, their interaction with the health system and sustained retention in care (Pearson et al., 2006).

DOT has been identified as possible means of helping patients with difficulties adhering to ART. Enthusiasm for DOT in HIV care is based on its successful use treating non-adherent patients on TB. DOT programs in HIV care remain optional and voluntary unless an unequivocal public health benefit can be established in the particular population of patients in question (Machtiger and Bangsberg, 2006). The community-based DOT-ART interventions are large enough to detect meaningful clinical and public health differences that improve patient's conditions and save lives.

DOT ART may be effective and feasible using family or friends and that programmes based outside the workplace may be culturally acceptable offering DOT ART in an individually tailored, patient-centred and flexible manner as an option for clients who would find it helpful.

DOT ART for drug users is an individual level intervention. The patients are provided with a pager that is programmed to remind them to report to a mobile community health care clinic on weekdays to take their medications. DOT ART specialist observes the patients taking their medications and also provides social support and case management services. Weekend doses are provided on Fridays and 1-3 days of back-up medication is also provided in case a participant is unable to appear for DOT ART visit. The patients are reminded to take evening doses through the pager. Reminders for other scheduled activities such as medical appointment, are also programmed into the pager (McKleroy et al., 2006).

Each patient receives a medication bottle with a MEMS cap to monitor non-observed doses. DOT ART is provided for six consecutive months and patients are trained to package and self-administer their medications the month before transferring to complete self-administration of their therapy for additional six months of monitoring (McKleroy et al., 2006).

In the management of HIV infection, a modified DOT strategy is used as a behavioural intervention that helps patients to develop understanding of the treatment, develop good treatment taking behaviour, receive support especially during the first few weeks of ART when patients have short term side effects and develop a trusting relationship with health

community workers (Koenig et al., 2006). DOT-HAART was found to improve HAART adherence, supporting the presumed mechanism of DOT-HAART effectiveness on clinical outcomes through improved antiretroviral adherence (Hart et al., 2010).

Qualitative data suggest that other mechanisms may also mediate DOT-HAART effectiveness, including positive effects on patients motivation to engage in daily activities and become involved in the community; improved adherence to other aspects of medical care; and greater the utilization of other forms of social and adherence support (Hart et al., 2010).

The time and expenses of daily travel to a site that is not part of an important barrier to DOT-HAART adherence, in particular in resource-poor settings where the relative cost of travelling to health facilities may be even greater. DOT-HAART shows greatest treatment effect when targeting individuals with greater risk of non-adherence and when delivering the intervention that maximises participant convenience and provides enhanced adherence support (Hart et al., 2010).

2.3.3. MOTIVATIONAL INTERVIEWING (MI)

Motivational interviewing is a psycho-therapeutic method that is evidence-based, relatively brief, specifiable applicable across a wide variety of problem areas, complementary to other active treatment methods, and learnable by a broad range of helping professionals. MI is successfully used by physicians to encourage patients to take medications properly. The interviews aim to build confidence, reduce ambivalence and increase motivations for ART adherence (Dilorio, McCarty, Resnicow, McDonnell et al., 2008).

The effectiveness of MI also appears to be amplified when it is added to other active treatment methods. It therefore shows promise as one clinical tool, to be integrated with other evidence-based methods for use when client ambivalence and motivation appear to be obstacles to change (Miller and Rose, 2009).

Most patients are unable to achieve and sustain high levels of ART adherence needed to maintain the substantial health benefits of combination ART. The individually tailored nature of MI, an effective theory-based client-centred counselling approach, makes it promising strategy for addressing the complex multi-dimensional features of ART adherence. MI counselling methods could be used to support the adherence efforts of men

and women taking ART. MI communication style is used primarily by counsellors and psychologists in their clinical practices. In HIV clinical setting, professional nurses are most often responsible for adherence education and counselling, so, they can use MI as one approach to support adherence (Golin et al., 2006).

One goal of MI is to increase intrinsic motivation for behavioural change. MI is client-centred approach for enhancing motivation to change behaviour or maintain healthy behaviour and reduce ambivalence for medications. The counselling strategy has been used successfully to modify a variety of behaviours, most notably drug and alcohol use, MI is a client-centred directive method for enhancing intrinsic motivation to change by exploring and resolving ambivalence. The communication style is reflected in a set of techniques to encourage participants to identify and discuss barriers to adherence, to express and resolve ambivalence about taking medications and to support motivation to attain and maintain adherence. MI has been used with HIV positive persons to address substance use medication adherence and safer sex preventive behaviours (Holstad et al., 2011).

Motivational Interviewing (MI) counselling has been successful in changing many health behaviours in the United States, including substance use, fruit and vegetable intake and physical activity (Bennet et al., 2008; Stein, Herman and Anderson, 2009). In the United States, MI has been recently used with infected persons to address substance use (DiIorio et al., 2008). There are few reports of MI used in Sub-Saharan countries and none in Nigeria. Two studies reported on the feasibility of training health care workers in South Africa with limited effectiveness in terms of its use by health care workers, but neither report on patient outcomes (Dewing et al., 2010).

The Keeping Healthy and Active with Risk reduction and Medication Adherence (KHARMA) project used MI in a group format to promote both medication adherence and risk reduction behaviours in HIV infected women in a Southern State in the United States. The MI group intervention consisted of 8 sessions based in MI delivered in a group format sessions including awareness and ambivalence of the good and not so good things about taking ART, developing and dealing with discrepancies between the current adherence behaviours and future goals, enhancing adherence self- efficacy by sharing and building on successes, strengthening self-efficacy for male/female condom skills and knowledge, explaining ambivalence about condom use and practicing condom negotiation

skills, discussing the pros and cons of HIV status, disclosure and building disclosure skills (Holstad et al., 2012).

One of the biggest challenges that primary care practitioners face is helping people change long-standing behaviours that pose significant health risks. Research into health related behaviour change highlights the importance of motivation, ambivalence and resistance. MI is a counselling method that involves enhancing a patient's motivation to change by means of four guiding principles, Resist the righting reflex; Understanding the patient's own motivations; Listen with empathy and Empower the patient (Hall, Gibbie and Lubman, 2012).

MI is an effective counselling method that enhances motivation through the resolution of ambivalence. It grew out of the Prochaska and Di Clemente Model and Miller and Rollnicks (UNGASS, 2010) work in the field of addiction medicine, which drew on the phrase ready, willing and able to outline three critical components of motivation as the importance of change for patient (willingness), the confidence to change (ability) and whether change is an immediate priority (readiness). Using MI techniques, the practitioner can tailor motivational strategies to the individual's stage of change according to the Prochaska and Di Clement Model (UNGASS, 2010). Studies support the applicability of MI to HIV care, such as improving adherence to ART and the reduction of substance use among HIV positive men and women (Afolabi, 2009).

MI is underpinned by a series of principles that emphasize a collaborative therapeutic relationship in which the autonomy of the patient is respected and the patient's intrinsic resources for change are elicited by the therapist. Within MI, the therapist is viewed as a facilitator rather than expert who adopts a non-confrontational approach to guide the patient toward change. The overall spirit of MI has been described as collaborative, evocative and honouring of patient autonomy (Hall, Gibbie and Lubman, 2012).

2.3.4. COMMUNITY HEALTH WORKER (CHW) MODEL

Community health worker model is emerging as an effective peer intervention to overcome barriers to adherence and thus improve medication compliance among people living with HIV/AIDS. All study interventions focused on the outcomes in HIV positive individuals and all studies described a community health worker approach to improving medication adherence. CHW model contributed to measurable HIV viral load suppression

and/or improved CD4 cell count in the majority of the studies reviewed. More frequent CHW contact over a longer period of time also associated with improved outcomes. This association between the frequency of CHW contact and outcomes may suggest a dose response relationship between CHW exposure and improvements in HAART adherence (Kenya et al., 2011).

The CHW model offers promise to address the sociocultural and environmental barriers to HAART adherence and the achievement of equitable HIV outcomes. The findings imply that DOT can be effectively implemented by CHWs in the USA and may be an economically feasible alternative. A key component of the CHW model relies on building trust between participants and CHWs (Kenya et al., 2011). In our review, a short duration of intervention was associated with poorer outcomes which may suggest that a longer time is needed to establish a therapeutic bond. Effective maintenance processes may reduce the CHWs daily burden of work with individual patients, thereby allowing participants to receive services for a longer duration. These may provide an effective structure for supporting participants to develop skills required to adhere to HAART and to make the transition of independence. CHW model has been successfully implemented in many parts of the world, yet information regarding its efficacy in the USA is sparse. The multi-centred studies in diverse geographical locations are needed to further identify how health practitioners may utilize CHWs effectively (Kenya et al., 2011).

CHW model of home-based preventive care, the Philani Intervention Program (PIP) resulted in significantly enhanced maternal and infant well-being among pregnant women living with and without HIV in Cape Town townships, researchers report in the advance online edition of AIDS. In this cluster randomized controlled trial, HIV positive women receiving home visits during pregnancy and the first six months of their baby's life were more likely to follow through on tasks relating to prevention of mother-to-child transmission of HIV (Le Roux, 2013).

Among all women receiving home visits, consistent condom use was higher and their infants were more likely to be exclusively breastfed for the first 6 months. Identification of CHWs with maternal, child health and nutrition programme helped avoid much stigma associated with HIV. Home visits created a means for on-going support for all women in the community. CHW approach grounded in cognitive-behavioural skills, with locally

tailored content addressing local health risks, may be a strategy that is scalable globally (Le Roux, 2013).

In low and middle income countries including South Africa, CHW often focus on single issues e.g. HIV testing and adherence to HIV treatment. CHW identified with HIV interventions are more likely to be rejected because of stigma, associated with HIV. Using a model of pragmatic problem solving with cognitive-behavioural strategies, the authors trained CHWs to address multiple health issues, notably those of particular concern in pregnancy in South Africa: HIV, alcohol use and perinatal care. In addition to sustainability, home visits deal with barriers to obtaining health care encountered at clinics: appointments are difficult to schedule, waiting times are long, transport is costly and mothers have to coordinate care among multiple clinics. PIP provided both task shifting and site shifting (from clinics to communities). It allows governments to leverage the investments in HIV to address concurrent health issues. PIP offers an intervention model and evaluation strategy for building sustainable, locally-tailored CHW home-visiting programmes (Le Roux et al., 2013).

Haiti is the poorest and most heavily HIV-burdened country in the Western hemisphere, with even less health infrastructure than many countries in Sub-Saharan Africa. Large scale HIV treatment requires that basic health care services be built and scaled up simultaneously with HIV prevention and care programmes. The non-governmental organisation, Zanmi Lasante (ZL) contributed to the HIV prevention and treatment scale-up and to the on-going efforts to improve primary health care services in the public health system in Haiti (Mukharjee and Eustache, 2007).

The model depends on CHWs who supervise ART and provide community outreach, including active case finding and outreach to marginalised populations. ZL recruited, trained and financed large cadre of CHWs to provide such linkages between communities and health centres in rural Haiti. Most patients at risk were properly identified at community level, CHWs are facilitating the uptake of primary health care services including the most vulnerable households. The general training of CHWs has created a positive self- definition in these cadres of their medical patient support and health service roles, although with some variability across different groups (Mukharjee and Eustache, 2007).

CHWs also trained HIV positive individuals on ART readiness on the advantages and side effects of ART in South Africa, Zambia, and Mozambique (Schneider, Hlophe and Van Rensburg, 2008; Kipp et al., 2012; Torpey et al., 2008; Simon et al., 2009; Grimwood et al., 2012). In this Kenyan study, the presence of CHWs was reported to contribute to a positive perception of people living with HIV in the community by demystifying HIV, interacting with people who had the disease and increasing their social visibility and acceptance. CHWs activities were sometimes associated with the behaviour change in relation to some pre-specified HIV associated risky behaviours, as well as disclosure to HIV. The latter outcome is particularly important considering that people living with HIV involved some of the studies were often not willing to disclose their HIV status, fearing stigmatization, discrimination and isolation, for instance in Kenya and South Africa (Wouters et al., 2009). CHWs provided behaviour counselling and facilitated HIV disclosure in South Africa (Igumbor et al., 2011) resulting in better disclosure among patients with CHW support compared to patients who did not receive support. Similar findings were observed in Ethiopia and Uganda in relation to improved disclosure (Gusdal et al., 2011). In western Kenya CHWs counselled HIV widows regarding wife inheritance which motivated them to take up HIV testing. Two studies investigated this outcome and found that the quality of counselling provided by CHWs in Malawi and South Africa was comparable or better than that provided by trained health care workers (Schneider, Hlophe and Van Rensburg, 2008).

CHWs performed a variety of behaviour change counselling, including pre and post-test and ART adherence counselling in Kenya, South Africa, Malawi, Uganda, Lesotho and Zambia (Torpey et al., 2008; Grimwood et al., 2012; Schneider, Hlophe and Van Rensburg, 2008; Igumbor et al., 2011) however the scope of their involvement varied. CHWs in Kenya, Uganda, Lesotho and Zambia offered pre-test counselling and then handed patients to trained health providers to perform HIV tests. In South Africa CHWs is a source of bereavement counselling for those grieving over HIV-related deaths during which they also discussed the future of potential AIDS orphans.

In Malawi, CHWs screened and referred 806 individuals for TB diagnostic services during their routine home visits to people living with HIV. Some studies also reported that CHWs distributed condoms at the community level (Kipp et al., 2012). Adherence support to ART by CHWs either during home visits or through mobile phone reminders was a recurring theme across most studies. Most notable was the variety of strategies

employed by CHWs to provide adherence support within community settings. In South Africa, Kenya, Uganda, Lesotho and Mozambique, CHWs supplied ARVs and other medications at the community level. They encouraged people living with HIV to take ART and observed ART ingestion during home visits in Kenya, Uganda, Rwanda, South Africa, Malawi and Zambia. They performed pill counting, used mobile phones in Uganda to remind patients to take their medication and delivered up to one month's supply to ART to patients homes in Kenya and Uganda (Kipp et al., 2012; Selke et al., 2010). In Uganda and Ethiopia (Gusdal et al., 2011) peer counsellors acted as expert patients and facilitated adherence by acting as role models.

In Uganda and Malawi, CHWs assessed and referred patients with ART-related toxicities, which were a frequent barrier to adherence (Kipp et al., 2012; Jaffer et al., 2009; Apondi et al., 2007). In Mozambique CHWs formed peer support groups of people living with HIV, who collected ART for those unable to attend their clinic consultations in person and they also traced defaulters (Simon et al., 2009). In the South African study, patients with CHW adherence support were more consistent in picking up their medication, attaining a treatment pick-up rate of 95% compared to those without CHW adherence support (Igumbor et al., 2011).

Most studies found that the deployment of CHWs was associated with better retention of patients in HIV care. In Zambia an improvement in retention of ART patients from 85.4%-100% was reported 12 months after the introduction of adherence support workers (Torpey et al., 2008). In Rwanda, a high rate of patient retention at 24 months (92.3%) was reported following the implementation of community based adherence support (Richet al., 2012) although there was no reported baseline for comparison in this cohort study. Two qualitative studies showed that CHWs enhanced dignity and quality of life by creating a sense of belonging and companionship to people living with HIV in Kenya and South Africa; who would otherwise have felt isolated (Grimwood et al., 2012).

In Mozambique groups of people living with HIV provided livelihood support to their peers through gardening activities (Simon et al., 2009), in Kenya CHWs funded home-based care activities through proceeds from the sale of essential drug kits in Malawi community volunteers trained 1694 AIDS orphans on vocational skills such as carpentry, metalwork etc. (Zachariah et al., 2007). In Zambia and Uganda CHWs were located at HIV clinics, where they guided patients through health facilities, reduced waiting times

and improved patient flow (Arem et al., 2011; Sanjana et al., 2009). In Lesotho and Kenya CHWs monitored and recorded patient's vital signs during home visits which reduced the need for patients to visit health facilities significantly (Joseph et al., 2012).

The systematic review of the role and outcomes of CHWs in HIV in Sub-Saharan Africa found evidence from 21 studies that CHWs are performing a variety of roles, including counselling, HIV testing, home based care, education, adherence support, livelihood support, screening, referral and surveillance activities (Nyamathi et al., 2011). There is evidence that the quality of certain services provided by CHWs, such as counselling, may be as good as or better than that provided by trained health care workers in Malawi and South Africa (Schneider, Hlophe and Van Rensburg, 2008).

2.3.5. ART ADHERENCE CLUB MODEL

The adherence club model provides patient-friendly access to ART for clinically stable patients. It reduces the burden that stable patients place in health care facilities, increasing clinical human resources for new patient's, and those clinically unstable and at risk of failing treatment. The group meets either at a facility or community venue for less than an hour every two months. Group meetings are facilitated by a lay club facilitator who provides a quick clinical assessment, referral where necessary and dispenses pre-packed ART (Fox and Rosen, 2010).

From January 2011 to December 2012, after adoption for phased roll-out by the Western Cape Government, more than 600 ART clubs were established in Cape Town, providing ART care to cover 16 000 patients (Wilkinson, 2013).

The growing number of patients attending health care facilities place increasing pressure on already stretched human-resource capacity, impacting the time taken to deliver services and the quality of care provided. In turn, the cost to patients of having to return to facilities competing demands on time including work and family responsibilities and dissatisfaction with the quality of care, all affect long term retention (Ware et al., 2013). Effective long term retention models of care are needed that offer quick, inexpensive and patient friendly access to treatment and care for stable ART patients. Such models aim to decrease the burden that stable patients place on health care facilities, thereby increasing human resources for new patients and those who are clinically unstable and at risk of failing treatment (Harries et al., 2010).

Adherence clubs are an option for rapid service delivery, 30 patients are allocated to a group and meet either at a facility or community venue for less than an hour every 2 months. These group meetings are facilitated by a lay club facilitator who provides a quick clinical assessment, with referral to a clinician, where necessary and dispenses pre-packed ART. The club members establish a positive group dynamic over time, which renders much needed peer support for adherence to life-long treatment. Club facilitators refer any patient reporting symptoms or ill-health or who recorded weight loss since their last club visitation (Harries et al., 2010).

The club is supported by a facilitating nurse who is available to see patients referred by facilitator, immediately after a club sessions. All club patients receive annual blood tests, with scheduling aligned and blood samples taken at the session. Two months later, all members are seen by the club nurse for their annual clinical consultation and repeat prescriptions of ART. Patients qualify for ART club membership if they have been on the same ART regimen for longer than 12 months, and have two consecutive undetectable viral loads and do not have any clinical conditions that require regular follow-up. While in the clinic waiting room, patients are encouraged to request their clinician to assess them for club recruitment (Fox and Rosen, 2010).

Club patients are entitled to send a Buddy to collect their treatment from their ART club. However, patients themselves must attend every second club session, including the annual blood investigation and annual clinical consultation sessions. Patients can be removed from club care and returned to mainstream care when he or she misses a mandatory club session and fails to attend the clinic within 5 days. Patients determined by the club nurse to require more regular follow-up and those with elevated viral loads are also returned to mainstream care (Harries et al., 2010).

Club patients are monitored by completion of a simple register by the facilitator. Attendance is then captured as club plus clinic attendance in the clinic's electronic database by the clinic data capture. ART clubs are considered part of the ART service at a facility and are managed by a facility-based nurse (called the club manager) who is responsible for the scheduling of club dates, the smooth running of clubs, clinical governance and club reporting requirements. Daily rotation of the club nurse function within a facility ensures collective responsibility for the management of club patients. Implementation of clubs and their expansion within a facility is dependent on the clinic

pharmacist as the club model relies on the pre-packing of ART (Luque-Fernandez et al., 2013).

The ART adherence club model improves adherence and long term retention in care among clinically stable ART patients, while optimising health resources to manage new ART patients and patients at risk of failing treatment. The impressively extensive and quick roll-out in the Cape Town Metro demonstrates active buy-in clinically stable ART patients. It is imperative that South Africa considers a similar model for national roll-out (Luque- Fernandez et al., 2013).

2.3.6. COMMUNITY ART GROUPS (CAG)

CAG are formed in the clinics. Counsellors and nurses are very important in brokering the HIV exposure and openness between patients to form groups, establishing trust between patients to form groups, establishing trust between patients and moving patient confidentiality from an individual to a group level. Counsellors have a major role in forming, training and monitoring groups at both clinic and the community level. They moderate and help solve problems in groups, meet group representatives during the monthly drug collection, exchange information with them and complete group monitoring forms. While nurses mainly identify potential new group members and refer them to counsellors, they check the CD4 count of individual CAG members every 6 months (Rasschaert et al., 2014).

In several clinics where a counsellor is present, a parallel patient circuit was created, whereby patients in CAG can immediately consult the counsellor to report on the group and receive the drugs without clinical consultation. The less frequent clinic visits per individual patient reduce the time and cost investment significantly. Group members receive and exchange mutual psychosocial support, which is highly valued. They advise and control each other on adherence issues. The patients are found to understand better the importance of the daily drug intake and consequently adhere better to treatment (Harries et al., 2010).

Being members of a group, patients realise that they are not the only ones living with HIV and needing treatment, which creates a very strong bond and network between the members. The group is often considered as a new family or church which provides a safe environment to talk freely and exchange information, knowledge and experiences. Many

groups established a code of conduct, which includes fiercely maintaining the group confidentiality and prohibiting consumption of alcohol or other products (tobacco) believed to jeopardise the groups secrecy or members health. Through this code of conduct, group members build a culture of commitment to assure regular drug supply within the group (Decroo et al., 2013).

CAG model was perceived as contributing to improved health outcomes. All stakeholders reported better retention on ART with less patients lost to follow-up and death in the clinics and communities. The increased involvement of patients in the health care services improved significantly the trust and communication patients in groups and health care provider's, the HIV related stigma and discrimination has reduced, as people living with HIV are no longer considered as ill patients (Wouters et al., 2012).

At the clinic level, the CAG model was found to improve the quality of care. The CAG model reduces the workload of the health staff, freeing up more time to nurses to attend to complicated cases. It provides better access to patient's information regarding pill adherence, well-being and treatment outcomes through a direct feedback loop between group members and health care workers. CAG is promoted as the best or only ART delivery model. The CAG model requires an adequate management and follow-up of the groups. This includes regular visits to the community to verify the groups functioning and treatment outcomes and identify the needs. The CAG model is an innovative ART delivery model that applies lessons learned from the management of other chronic diseases and community-based models (Herman et al., 2009).

At individual level, the main incentives for patients on ART to join groups were the immediate time and cost savings, as before many of them had to travel over 60km from home to the nearest ART service on monthly basis. At group level, the mutual psychosocial peer support to deal with daily problems resulted in a better understanding of treatment and improved adherence and retention on ART. Through their regular meetings group members share, combine and develop their knowledge, experience and personal skills to self- manage their disease. Peer support and community participation are considered as cornerstones for three main reasons:- people are likely to be more motivated to adhere to treatment if they have been involved in the decision making process; the collective resources facilitates access to the health care services; many people living with HIV have become experts in their chronic condition. Through sharing and

combining their knowledge and experiences, they can develop the necessary skills to manage the disease. Maintaining confidentiality of members HIV status at the group level is of supreme importance to protect against stigma and discrimination (Wouters et al., 2012).

In many clinics, CAG members seem to receive preferential attention and privacy over ART patients followed in individual care, potentially resulting in inequities in access to health care. CAG is the only way to guarantee regular access to ART due to transport and time costs, distances between communities and clinics, the limited availability of ART services and overburdened and understaffed health care system. The CAG model, is an innovative community-based ART delivery model, seems to result in very high retention outcomes among stable ART patients enlisted in peer support groups (Rasschaert et al., 2014).

Engaging with individuals and communities effectively around ART can improve health outcomes, contribute to greater understanding of adherence benefits lead to a stronger belief in the effectiveness of ART and reduce stigma in the community. Some community-based strategies to encourage adherence to treatment include participating in support groups, developing links with community-based organisations to support adherence, encourage links with support groups and creating links with patient advocates (Zachariah et al., 2006).

The delivery of ART and adherence support for stable adult patients on long term ART in Khayelitsha was shifted from individual consultations with nurses to group consultations led by non-clinical staff. This model of care resulted in improved retention on ART and decreased rates of virological rebound. The majority of the studied models have involved the shifting of key care tasks to less qualified clinical staff or to non-clinical staff, but few have been based on patient groups. Currently there is an emerging interest in patient groups as the vehicle of service delivery, and not just as an adherence adjunct to care (Decroo et al., 2010).

Administrative efficiency and decongestion of services are key aspects of the model: patients can bypass queues for collecting folders, waiting to see the practitioner and waiting for medicines, converting a consultation process that previously could take an entire day into one that can be completed within half an hour (Luque-Fernandez et al., 2013). Patients may also potentially take responsibility for tracing and linking group

members back to care when they miss visits, and arguably be more successful at achieving this than facility staff (Luque-Fernandez et al., 2013).

A previous descriptive evaluation of a patient-group based model of care in Mozambique reported 97.5% of patients retained in self-forming groups (Decroo et al., 2010) which are similar to the proportion retained in the adherence clubs in Khayelitsha. Patient adherence groups were found to be an effective model for improving retention suppression for stable adult patients in long term. ART care in Khayelitsha models based on patient adherence groups meeting outside of pressurized clinical consultation areas and facilitated by non-clinical staff are a promising approach to assist in the next wave of increased access to HIV treatment (Luque-Fernandez et al., 2013).

2.3.7. COMMUNITY HOME-BASED CARE (CHBC)

Studies have shown both relatively high ART adherence rates in sub-Saharan Africa and the importance of CHBC to facilitate this process. A better understanding of how CHBC may strengthen ART adherence is essential to improve patient's quality of life, tending to the needs of care supporters and achieving healthier populations. Real-time interactions between clients and care supporters whereby the care relationship was itself the intervention providing lay counsel, material and financial assistance and encouragement when clients suffered stigma, side effects and other obstacles to adherence (Root and Whiteside, 2013). People living with HIV/AIDS reports of care supporter practices that enabled ART adherence demonstrated the pivotal role that CHBC plays in many people living with HIV/AIDS (PLWHA) lives, especially in hard to reach areas. Relative to clinical personnel, care supporters are often intensely engaged in client experiences of sickness, stigma and poverty rendering them influential in individual decision making (Root and Whiteside, 2013).

This influence must be matched with on-going training and support of care supporters, as well as a clear articulation with the formal and informal health sectors to ensure that PLWHA are correctly counselled and care supporters themselves supported. Overall findings showed that PLWHA experiences of CHBC should be captured and incorporated into any programme aimed at successfully implementing UNAIDS treatment 2.0 agenda Pillar 4 (increasing HIV testing uptake and care linkages) and Pillar 5 (strengthening community mobilisation) (WHO, 2011).

CHBC has been shown to strengthen ART adherence in resource-limited settings. PLWHA reports of CHBC practices are especially insightful because they detail to extensive burdens community-based workers. The government National Framework for HIV/AIDS (2009-2014) has identified CHBC as a core component of its plan. Given the expanding and integral roles of CHBC, findings are relevant to many settings in rural Africa where affordable ART is available but access to formal health services is lacking and entrenched stigma undermines individual attempts to develop HIV healthy practices. Care supporters agility at creating safe disclosure settings was felt to be one of their most important practices. Safe disclosure is often essential to strong adherence, since not disclosing and fear of stigma are among the most important and prevalent factors to negatively affect adherence in sub-Saharan Africa (Root, 2010).

Disclosure brokering practices included discussing strategies and at times, joining the participant in disclosing to the family member should be cognisant of the clients HIV status, a care supporter might also with clients permission inform a family member on behalf of the client, importantly, in light of the reported significance between perceived stigma and missed ARV doses in Swaziland and elsewhere (Root, 2010). Disclosure could feel unproductive and at times be detrimental to PLWHA wellbeing. HIV disclosure emerged from participant reports not just as a complex psychosocial process punctuated by instances of telling different people at different times, but as a means of breaking down others denial of HIV and encouraging loved ones to seek ARV treatment. A self-declared commitment to ART adherence was a salient feature of participants reports as was the importance of care supporters encouragement, their counsel to avoid traditional herbal remedies, their readiness to respond to HIV related questions and advice to attend the clinic as among the most important roles they played (Root, 2010).

CHBC may substantially strengthen adherence and responses to ART in rural, resource limited settings, especially where transportation to a health centre presents an obstacle of adherence. The proactive dynamic of CHBC interventions through relationship formation was critical since HIV stigma, combined with sickness, can make it impossible for an individual compromised by HIV and poverty to mobilise social networks. Care supporters targeted concern with assisting clients to adhere was often integral to relationship building. Care supporters immersed themselves in the tragedies and tribulations their clients faced, and which importantly, care supporters themselves may suffer (Root, 2010).

The intense social pressures they faced to desist from their ART regimen, which further highlighted the importance of care supporters to reduce social barriers to uptake and embolden individual decisions to adhere to their prescribed ART regimens. Care supporters were pivotal in their ability to mitigate material scarcity, counsel side effects management and provide on-going encouragement to persevere under duress of daily life. Care supporters play extraordinarily powerful and influential roles in PLWHA and their family lives. As a consequence, it is imperative that care supporter training be continually monitored and updated regarding new treatment guidelines and other clinical as well as psychosocial insights that bear on PLWHA wellbeing (Dlamini et al., 2009).

Care supporters themselves also require appropriately tailored and comprehensive support. Enhanced adherence among CHBC clients may contribute to self-efficacy, which in turn holds out the promise of reducing care supporter burdens, knowledge of what works to achieve self-efficacy, from PLWHA perspectives, could help maximise CHBC-limited resources and manage care supporter workloads. Defining and achieving self-efficacy in context is therefore essential for reducing the burden of care that devolves onto community based health workers through governmental and multi-agency plans throughout Africa to decentralize health services (Kipp and Nkosi, 2008).

2.3.8. PEER SUPPORTER

Peer support had a very different effect on patients depending on patient's clinical condition when starting ART. Those with severe immunosuppression and opportunistic infections received extra adherence support from trained peer supporter reported significantly improved. Peer supporters are able to use, utilise their own experiences as PLWHA to empathetically listen, understand, advice and assist the patients to problem-solve. In addition, as the peer supporters had received training, they could act as intermediaries between patients and health care providers, giving information, counselling and assisting patients to contact health staff when needed particularly in cases the patients experienced severe symptoms that could influence quality of life negatively (Gusdal et al., 2011).

While quality of life become better overtime among patients who started ART in advanced stage of HIV/AIDS, the patients who had not experienced AIDS and opportunistic infections often showed a decline quality of life after baseline. They might have perceived the regular visits of the external supporters as annoying or threatening due

to the risk of involuntary disclosure to neighbours, which might have reduced some aspects of quality of life (Gusdal et al., 2011).

The decision to use peer supporter as an intervention was taken as a result of focus group discussions with patients on ART. The effect of peer support on quality of life improvement depends on the clinical stages of patients. There is a need to develop appropriate intervention tools tailored according to the severity of disease at ART initiation to enable contextualisation of the support to different strata of the patient population. For patients who initiate ART when they are at clinical stage one and two, adherence support via mobile phone text messages may be considered more appropriate than peer support in some settings, as it might be perceived to interfere less with patient privacy (Van Talam et al., 2012).

The intervention had a positive effect on quality of life among those who were at clinical stages three and four. The use of peer supporters is a comparably low cost measure and our recommendation would be for the health system to continue to work with peer supporters interested in this job, and then to specifically use them for support to patients at clinical stage three and four who are starting ART (Van Talam et al., 2012).

The peer support intervention improved the quality of life after 12 months follow-up for patients who were enrolled on ART with severely immunosuppressed condition but had no impact on quality of life for PLWHA on ART, measures to support adherence should be contextualised in accordance with the individual clinical and social needs of the patient (Gusdal et al., 2011).

Support of a treatment buddy, community health workers or support group had better ART outcomes than those patients who did not. Treatment buddies reminded the patient to take ARV drugs. Community health workers provided emotional support and motivation for adherence. The support group meetings helped them by sharing knowledge and experiences. 855 of patients rated treatment buddies community health workers and HIV support groups as good or excellent (Wouters et al., 2009). PLWHA served as peer assistants to help other people navigate the steps from HIV diagnosis to enrolment in HIV outpatient care clinics. National guidelines in 2010 have resulted in community teams trained to support adherence, resulting in a rate of retention of 90% in some districts (WHO, 2011).

Study between 2008 and 2010 in Mozambique found that support groups led to increased adherence ART distribution and monitored adherence was conducted by community groups in a model developed by Medecins Sans Frontiers and provincial authorities. Group members facilitated monthly ART distribution to other group members, provided adherence and social support, monitored outcomes and ensured that each group member had a clinical consultation once every 6 months (Decroo et al., 2011).

In a study in Botswana, patients who achieved excellent treatment adherence were those who had accepted their HIV status and engaged an encouraging confidante in their care (Nam et al., 2008). The use of clinic buddies as treatment supporters is relatively low costs and limits risk of forced disclosure because the patient selects his or her own body (Birbeck et al., 2009).

A study of 268 patients in South Africa, found that support of a treatment buddy, community health worker or support group had better ART outcomes than those patients whose treatment buddies did not remind them, 75.9% of study participants reported that their treatment buddy helped their adherence. Community health worker provided emotional support and motivation for adherence. 89.9% of support group members reported that the support group meetings helped them by sharing knowledge and experiences (Wouters et al., 2009).

In Vietnam people living with HIV served as peer assistants to help other people navigate the steps from HIV diagnosis to enrolment in HIV output. Care clinics National guidelines in 2010 have resulted in community teams trained to support adherence resulting in a rate of retention of 90% in some districts. In one district, ART retention improved from 66% to 85% between 2009 and 2010 (WHO et al., 2011).

Peer support intervention is an individual and group-level intervention. Clinic patients who are HIV positive and currently on HAART serve as peers who provide medication related social support through group meetings and weekly individual telephone calls. Group meetings led by the peers and research staff with graduate training in psychology, are designed to give patients an opportunity to interact face-face with their assigned peer meet other peers and patients and share experiences with the group (Simoni et al., 2009).

2.3.9. DECENTRALISATION AND TASK SHIFTING

Decentralisation of the services has moved the treatment closer to patients home and minimises the indirect costs related to transportation and working hours. Task shifting was also said to decrease the waiting time to see the clinician when low and mid-level health care providers are taking additional responsibilities and share the tasks of the physician (Assefa et al., 2014).

Ethiopia has been able to scale up ART in spite of the limited resources available in the country. The number of health facilities providing ART has increased significantly and reached 913 in 2013. The number of PLWHA started on ART has also increased markedly from 9000 in 2005/6 to more than 439 000 in 2012/13. Retention in care was recognised to be a challenge for the ART program. A number of interventions including programmatic health systems, structural, sociocultural and health information systems, have been implemented to address this challenge. As a result retention in care had been progressively improving, current retention rate per year increased from 77% in 2004/5 to 92% in 2012/13 (Assefa et al., 2014).

Decentralisation of ART to rural health facilities appears to be an effective and safe way to scale up ART and improve equity in geographical access to ART (WHO, 2011). Task shifting has been promoted widely as a mechanism for expanding access to ART (WHO, 2007).

In Ethiopia, task shifting to low and mid-level health workers has enabled large scale expansion of ART (Assefa et al., 2012). Task shifting from doctors to nurses or from health care professionals to lay health workers can be implemented without compromising health outcomes for patients (Assefa et al., 2012). Decentralisation was found to facilitate improved retention in care in Ethiopia. In previous study in Ethiopia it was also found that retention in care was better at decentralized primary health care facility than at centralised hospital level (Assefa et al., 2012). In the district of Lusikisiki, South Africa, the rate of loss to follow up among patients who started ART at decentralised sites (Bedelu et al., 2007).

In Malawi, it was demonstrated that a centralised ART clinic lost patients faster than the decentralised ART clinic lost patients faster than the decentralised one (Massaquoi et al.,

2009). Better retention was associated with presence of peer support groups and outreach services (Nash, Korves and Salto, 2008; Chan et al., 2010).

Task shifting from doctors to nurses or from health care professionals to lay health workers, was recognised to facilitate ART scale up and retention in care. It was also found to be feasible and implemented without compromising health outcomes (WHO, 2007). In Ethiopia, it was found that ART delivery by health officers and nurses did not compromise patient's outcomes (Assefa et al., 2012). Systematic reviews show that task shifting is an effective and cost effective strategy for ART roll-out (Mdege, Chindove, Ali, 2012).

Distance and transportation to the ART clinic were found to be important factors to improve retention in care in the Ethiopian ART program. They also found to be major barriers to retention in care in other resource-limited settings (WHO, 2012; WHO, 2011; Geng et al., 2010). Similar results were found in rural Uganda, Malawi, Cambodia and India (Tuller et al., 2010; Forster et al., 2008).

In Ethiopia, stigma and preference for traditional medicine and holy water were cited as some of the reasons for loss to follow up from ART clinics (WHO, 2011). In Malawi, it was found that stigma led to non-retention in 25% of patients on ART (McGuire et al., 2010). In Uganda, it was found that 1.2% of patients discontinued ART because of a belief in spiritual healing (Wanyama et al., 2007).

A study in rural Kwazulu Natal, South Africa found that outcomes of patients were not affected by decentralization of ART (Mutevedzi et al., 2010). Finance was reported to be a bottleneck for linkage and retention in care. In South Africa and Uganda around 35% of patients stated finance as a reason for absence from clinic visits (Dalal et al., 2008).

2.4. CONCLUSION

Improving adherence requires a combination of methods appropriate to the patient and clinical setting. Alterable factors known to impact adherence such as depression, substance abuse, homelessness and the therapeutic relationship between patient and the provider, should be addressed in a proactive and on-going manner (McNeil, 2009).

Adherence interventions should include dedicated educational and collaborative time with every patient to plan for medication adherence to maintain necessary support and

collaboration throughout the course of treatment. In this way, problems can be addressed, side effects dealt with, medications simplified or changed if necessary and adherence devices supplied where appropriate. The nature and degree of adherence support as well as the determination of which member of the clinical team will be responsible for it will vary from site to site.

CHAPTER 3: RESEARCH METHODOLOGY

3.1. INTRODUCTION

In this Chapter, the research methodology is discussed. The study design and the approach is described. The application of scientific principles such as sampling, trustworthiness and research ethics are clearly illustrated. Appropriate methods of data collection were discussed and the process that was used for data analysis was described.

3.2. RESEARCH METHOD

Qualitative research is the investigation of phenomena, typically in an in-depth and holistic fashion, through the collection of rich narrative materials using a flexible design (Polit et al., 2008). According to Burns and Grove (2009) qualitative research is a systematic, interactive, subjective approach used to describe and give meaning to life experiences. In this research on strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients on ART, data was collected in a systematic way using an interview guide, through the interaction of flexible in-depth interviews.

Qualitative research characteristically provides insight into the meanings of decisions and action taken (Al-Busaidi, 2008). It explores, discovers and involves respondents as active participants (Ulin et al., 2005). This study attempted to provide insight into the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients on ART. The professional nurses were active participants in this study since they had the platform to air their views and concerns.

3.3. RESEARCH DESIGN

A descriptive qualitative design was used to address the research question in this study. Descriptive design aims to describe and elucidate a phenomenon including factors, which may be related to the phenomenon (Polit, Beck and Hungler, 2008). According to the authors, descriptive studies also use in-depth methods such as interviews to understand the phenomenon. To describe the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients on ART in this study, in-depth interviews were used as the main data collection method. Descriptive studies do not involve manipulation of data, neither is there an attempt to establish causality (Burns and

Grove, 2011). In this study, no manipulation of data occurred. The existing situation was described as it is based on the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients on ART. The researcher had minimal control over the data. Control was only over what was asked and observed.

Descriptive studies tend to use very small samples especially for the researcher who is interested in examining situations in more depth. In addition, there is little relevance for generalisation (Burns and Grove, 2011). The researcher in this study managed to collect data from 30 participants in the study population. The aim was not to generalise the findings of the study to the general population of primary health care professional nurses regarding patients on ART, but to get an understanding of the issues related to adherence for replication in smaller settings. The design facilitated the detailed descriptions of the existing variables; the strategies utilised by primary health care professional nurses regarding adherence of patients to ART (LoBiondo-Wood and Haber, 2006).

3.3.1. SAMPLING

3.3.1.1. POPULATION

Burns and Grove (2011) define a study population as all elements (individuals, objects, events or substances) that meet the sample criteria for inclusion in a study, sometimes referred to as a target population. In this study, 20 professional nurses working in the 5 primary health care facilities referring to Mankweng hospital and dispensing ART to patients on daily basis; namely Nobody clinic (4); Mankweng clinic (4); Mamotshwa clinic (4); Makanye clinic (4) and Evelyn Lekganyane clinic (4). All the 20 professional nurses in the study population were eligible participants in the study. Polit et al., (2008) are of the opinion that in qualitative studies the size of participants is determined by the purpose of this study. The purpose of this study was to describe the professional nurses strategies utilised in the primary health care facilities regarding adherence of patients on ART. The qualitative descriptive design was found to be the most appropriate way to obtain the type of data this study sought to investigate.

3.3.1.2. SAMPLING

Burns and Grove (2011) define sampling as the process of selecting a group of people, events, behaviours or other elements that are representative of the population being studied. The non- probability purposive sampling was used in this study. The total

number of sample was 20 professional nurses in the 5 primary health care facilities who dispense ART to patients on daily basis and referring to Mankweng hospital and willing to participate in the study.

Qualitative samples are usually small because from there, a rich and large amount of information is yielded. Qualitative research is highly intensive in terms of resources, so it becomes manageable when samples are small. There is no determination of statistically significant discriminatory variables (Ritchie et al., 2003).

Burns and Grove (2011) define eligibility criteria or the inclusion criterion as a list of characteristics essential for eligibility in the target population. The authors further elaborate that the eligibility criteria determine the target population (study population).

In this study, the participants had to fulfil the following criteria:-

1. Participants had to be professional nurses
2. Participants should be working in the primary health care facilities, Capricorn District, Limpopo Province.
3. Participants should be using Mankweng hospital as referral.
4. Participants should be dispensing ART to patients on daily basis.
5. Participants had to be willing to participate in the study.

20 professional nurses complied with these criteria and were therefore all included in the study population.

3.3.2. DATA COLLECTION

3.3.2.1. DATA COLLECTION APPROACH

Data collection is defined as the precise and systematic gathering of information relevant to the research purpose, objectives and questions. The researcher is totally involved-perceiving, reacting, interacting, recording and attaching meaning (Burns and Grove, 2011). In this study, the researcher was involved in interacting with participants through the interviews. The researcher was also involved in recording field notes and attaching meaning to what was perceived during observation methods. The researcher was a sole collector of data in this study because the number of participants in the sample was small enough to make data collection manageable. Having a very small sample in qualitative studies has some implications-it may reduce the ability to generalise the findings to the

study population. The researcher approached the participants in order to request their involvement in this study. In the discussion with participants, the researcher explained the background, the purpose and the significance of the study and the methods of data collection involved. The ethical issues of confidentiality were discussed as outlined in the informed consent.

All the 20 professional nurses verbally agreed to participate and appointment dates for interviews were set. The informed consent forms were signed just before the interviews started. The researcher managed to collect data from 18 professional nurses. Observation methods were made on the professional nurse's practices and on their communication with patients.

3.3.2.2. DATA COLLECTION METHODS

Unstructured interviews and unstructured observation data collection methods were applied during the study. Unstructured data collection approaches are commonly used for studies of qualitative design.

3.3.2.2.1. UNSTRUCTURED INTERVIEWS

Interviews are one of the most commonly recognised forms of data collection in qualitative research. These involve verbal communication between the researcher and the subject during which is provided to the researcher (Burns and Grove, 2011).

The responsiveness and interactive nature of the unstructured interviews made the method appropriate for data collection in this research (Arthur and Nazroo, 2003). This is because interaction between the researcher and the interviewee was the most appropriate way to collect information on the strategies utilised by professional nurses. Unstructured interviews are primarily used in descriptive and qualitative studies (Burns and Grove, 2011). In unstructured interviews, the researcher has some sense of themes they wish to explore. These themes allow the researcher to frame interview guides. Interviews are generally based on an interview guide (Legard, Keegan and Ward, 2003). The interview guide was used to maintain focus during the interviews. The structure of the interview guide was sufficiently flexible to permit topics to be covered in the order most suited to the interviewee and to allow the researcher to be responsive to relevant issues raised spontaneously by the interviewee. The questioning techniques were flexible with pre-stated order or question wording. This allowed for a more informative description of the

strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients to ART. Because of the flexibility of unstructured interviews, responses were probed and explored; information was obtained from the professional nurses in their own words without imposing any of them.

In interviews, new knowledge is generated and participants are invited to put forward ideas and suggestions on a particular topic (Legard et al., 2003). In this study, professional nurses were invited to put forward ideas and suggestions on improving patient adherence to ART.

3.3.2.2.2. THE INTERVIEW GUIDE

An interview guide with few open-ended questions was used. The interview guide was used in this study was:-

1. To act as a prompt to the interviewer.
2. To act as a security blanket when the interviewee is stuck in the middle of the interview
3. As a way of monitoring the progress over the period of the interview
4. To ensure that all relevant areas are covered during the interview.

However, some researchers do not support the use of interview guides. Polit et al., (2008) and Burns and Grove (2009) argue that in unstructured interviews, the researcher has no preconceived view of the content of flow of information. The researcher asks the participant a broad grand tour question where subsequent questions are guided by the initial response.

The use of an interview guide in unstructured data collection methods remains a controversy. However, the researcher in this study used an interview guide in line with what Aurthur and Nazroo (2003) have to say about interview guides. These researchers encourage the use of interview guides even in the most unstructured interviews.

An interview guide in unstructured interviews has to be flexible enough not to always ask questions in the same way (Aurthur and Nazroo, 2003). In this study, while the phrasing of questions to the participants was not exactly the same, the themes were similar. Aurthur and Nazroo (2003) are of the opinion that if an interview guide is designed as a king of a semi-structured questionnaire, it will limit the degree to which the researcher

can interact with interviewees. This is why the questioning in this study was flexible with pre-specifying wording.

A pre-test was done to test the interview guide which was modified accordingly. The interview guide addressed issues concerning professional nurses strategies in the primary health care facilities regarding adherence of patients to ART, factors perceived to be impacting on adherence, the professional nurse recommendations on how to best improve the benefits of ART. There were no categorisations to limit the field of inquiry in these open qualitative interviews. An open-ended question was allowed to flow from the interviewee. The interviewee kept the discussion on track by acting as a guide.

3.3.2.2.3. PRE-TESTING OF THE INTERVIEW GUIDE

Pre-testing of interview guide was carried out before getting into the data collection for the major study. Three professional nurses from the primary health care facility, Seshego II, which does not refer to Mankweng hospital and dispensing ARV to patients on daily basis. After the pre-test, the interview guide was modified accordingly. The results for the pre-test were not included in the data analysis for the major study.

3.3.2.2.4. THE INTERVIEW PROCESS

All eligible participants were initially approached in person where the introduction to the study was made informally and the need to audio tape the interview sessions was explained. Appointments with the participants were then made in advance with those participants who agreed to be interviewed. Interviews were carried out in the afternoons when it was presumably less busy at the primary health care facilities.

The dates were confirmed to the professional nurses' best convenience. The participants were interviewed individually and mostly in their natural settings, which is at primary health care facilities. The researcher arrived ten (10) minutes before the scheduled time to prepare the voice recorders and to receive the participants at the venue of their choice. The voice recorders were put aside and were only used after obtaining permission from participants during informed consent. A do not disturb sign was hung outside the door during the interview session making the other personnel aware of what was going on inside the office. A digital voice recorder were used so that data would not be completely lost if one name during the interview recording. Data was collected at the following

primary health care facilities, Nobody clinic, Mankweng clinic, Makanye clinic, Evelyn Lekganyane clinic and Mamotshwa clinic.

The average duration of each interview session was 15 minutes to 30 minutes. The possibility of follow-up interviews was indicated and appointment dates for observation were set. In this study, no follow-up interviews were found necessary (Polit et al., 2008). Besides making a pledge of confidentiality to the participants to reduce the Hawthorne effect, there was nothing much the researcher could do to control it.

3.3.3. DATA ANALYSIS

Data analysis is the systematic organisation of research data, which is conducted by reducing data to give meaning (Burns and Grove, 2011; Polit et al., 2008). There are several reasons why analysing qualitative data poses a challenge for the researcher. Firstly, there are a number of ways to analyse data in qualitative research and no approach is right or wrong (Poggenpoel, 2001). In addition there are number of ways to analyse data in qualitative data. This makes replication difficult. But there are general guidelines a researcher can adhere to, to overcome such challenges. Tesch's approach was used to analyse data in this research (Poggenpoel, 2001).

The second challenge is that the large amounts of data, which are often of limited generalizability are expensive to analyse. To overcome this challenge, all subjects in the study population formed eligible participant for data collection.

The final challenge is in reducing the qualitative data which is compressed too much, the very point of maintaining the integrity of narrative materials during analysis phase is lost (Polit et al., 2008). Maintaining the narrative materials in the participants own words as presented in Chapter 4 helps to avoid data compression.

Interview data, which was collected by means of audio recorders, were transcribed. Observation data, which was collected as observation notes, were analysed the same way as the interview transcriptions. Data was analysed manually. Open coding was used in the content analysis.

3.3.3.1. DATA TRANSCRIPTION

The researcher had to read through all the transcriptions carefully (Tesch's in Poggenpoel, 2001). The most interesting interview was picked and re-read using words

and sentences as units of analysis, the spoken words and sentence were underlined. Thoughts that occurred during transcription were written in the right margin. When the researcher has completed this task, a list of all topics (the underlined words) was made. The underlined words (still in the participants own words) were then transferred to a table where similar topics were clustered. These were formed into columns that were arranged into categories. A preliminary organising scheme was done to see whether new topics and codes had emerged.

Themes with common themes were grouped together in an effort to reduce the list of categories. The raw data sent to an independent coder for analysis. The selection criterion for a coder was a professional who had some experience in qualitative data analysis at least at a Masters level.

The coder had to do an inquiry audit by scrutinising the raw interview to transcripts against the voice recordings on the interviews. The aim was to make sure the researcher had not missed any information during transcribing. The transcripts were sent to the coder. The researcher questions, the research purpose and objectives were given to the coder. A meeting took place with the coder after independent coding with the aim of comparing the themes and reaching a consensus.

3.4. CONCLUSION

This Chapter described the steps that were followed by the researcher when conducting the research process. A descriptive qualitative approach was used to describe the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients to ART. A qualitative research design, which involved in-depth one-to-one interview, was used. Data was collected from professional nurses working at the primary health care facilities and dispensing ART to patients on daily basis. Unstructured data collection approach methods were used. These included qualitative in-depth interviews and non-participant simple observation methods. Qualitative in-depth interviews allowed for in-depth information on the professional nurses strategies regarding patient's adherence to ART. An interview guide was used, the main purpose of which was to ensure that relevant topics are covered during the interview. Interviews were audio recorded and observation notes were used to capture data analysis during the periods consultations were observed. The Tesch's approach to data analysis was explained as a means to be used in data analysis. Measures taken to enhance

trustworthiness of this research were addressed. The scientific rigor and the ethical principles that were taken into consideration in this research were explained.

CHAPTER 4: RESEARCH FINDINGS

4.1. INTRODUCTION

In this chapter, the findings of this research are presented. The demographic data of the participants for this research is presented as well. The researcher and the coder came up with three main themes. The main themes are:

1. Professional nurses strategies around monitoring of adherence to ART.
2. Professional nurses strategies about the modifying factors to ART.
3. Professional nurses intervention strategies to improve adherence to ART.

The researcher used several categories and sub-categories and few unique categories as displayed in Table 4.1, Table 4.2 and Table 4.3. The themes were directed to satisfy the requirements of content analysis, which includes words, paragraphs and phrases that are used in the report. In unit analysis, categories group the data for easy presentation. The development of categories was done to reduce the data into smaller chunks with the aim of facilitating understanding of data.

4.2. DEMOGRAPHIC DATA OF THE PARTICIPANTS

The total number of interviewed participants was eighteen (18) out of twenty (20) participants in the study population. The participants were males and females who had at least a Diploma in general nursing science. Some had gone up to a degree within the nursing profession. Most of them had at least done the adherence counselling course and were registered with their registering body. The participants mean number of years in the public sector was 4.5 years. The researcher therefore assumed that the participants' working experience in the provision of ART in the public sector was adequate to provide the strategies that they utilize in primary health care facilities regarding adherence to ART.

4.3. THEME ONE: PROFESSIONAL NURSES STRATEGIES AROUND MONITORING ADHERENCE TO ART

The methods of assessing or monitoring adherence are modifiable and can influence adherence to ART. If patients are not assessed about taking treatment the right way, they become relaxed. Below is the presentation of how professional nurses assess or monitor the patient's adherence to ART in the Capricorn District. The methods included:-

- Pill counting
- Patient self-report
- Monitoring CD4 cell counts and viral load
- Assessing or monitoring appointments

Table 4.1. Summary of theme one: Professional nurses strategies around monitoring adherence to ART

Main Theme	Category	Sub-categories	Further Categories
Professional nurses strategies around monitoring adherence to ART.	Professional nurses cues to action.	Methods assessing or monitoring adherence to ART	-Pill counting -Patient's self- reports -Monitoring CD4 and viral load. -Assessing the appointments

These methods will be discussed in this section. The professional nurses practices, which include the way they assess patient's adherence to ART was explained or described. These results are discussed under the particular method of assessment. The limitations as perceived by the professional nurses are presented.

4.3.1. Pill counting

All of the professional nurses identified "Pill counting" as a method of assessing patient's adherence to ART. Some professional nurses reported that they do pill counting for the first 3 months for patients who are starting the treatment. After 6 months when the patients show good adherence, the professional nurses relax on pill counting. It is left to

the pharmacy personnel, some professional nurses reported to do pill counting for each and every patient.

“We do pill counting and see how many pills were given before and how many they come back with, then we tell the difference.....”

“We ask the patient to show the tablets that are remaining from his or her last supply”

“Somebody who was already on the treatment, come in to consult, the first thing we ask that person is to show the tablets that are remaining from his or her last supply.”

“I do not do pill counting for every patient, but of course.....in the first three months, for every patient whom I have initiated the treatment, I am doing the pill count....when it goes to the 6th month and I see the patient has stabilised, then I would relax a bit.”

4.3.1.1. Limitation of pill counting

Some professional nurses raised concerns over the method of pill counting, “Pill dumping” was the most raised concern by professional nurses. Professional nurses are of the opinion that some patients throw away pills to appear to be more adherent. This limits the reliability of this assessment method. The following were some of the reports:-

“A patient can also be clever, they can remove and throw the pills away.”

“But you know somebody can still throw away the tablets”

Some of the professional nurses therefore think that enquiring from the patient the number of times they take treatment and asking whether they have ever missed treatment (self-reporting) is helpful. This method is discussed below:-

4.3.2. Patient’s self-reporting

Professional nurses in the Capricorn District use patient’s self-reporting as one of the methods to assess patient’s adherence to ART. Professional nurses explained that this is when they sit down with the patient and ask how the patient has been taking medication. If communication skills are good, the professional nurses believe that the patient will be free to even include the wrong things that they do. The following are quotations from the professional nurses that illustrate the use of patient self-reporting:-

“We just talk to them, you know a patient should be free to tell you really the correct thing, you should not be watching over him like a policeman.”

“We check the times that this person takes treatment.....we ask how you take the treatment, with this one, how do you take it, the person will tell you, I take it twice a day, what time? He will tell you the time, if he happens to be taking mistakenly, you already have a clue.”

“And when you sit down with the patient and try to talk to them, some admit that they skipped treatment.”

4.3.2.1. Limitations of self-reporting

The problem cited with self-reporting was that the method solely relies on the information from the patient's and the fact that patients sometimes do not tell the truth. The professional nurses were quoted as saying:-

“A patient who has been on treatment for a long time can always manipulate the information they give to the professional nurses.....they can still lie to you.”

“They tell you that they are taking drugs, but the truth is they are not taking the drugs at all.”

“They tell us they are adherent, they have never missed a pill and we believe.”

4.3.3. Monitoring CD4 cell counts and viral load

Out of the 18 professional nurses who were asked on how they assess patient's adherence to ART, 9 of them indicated that they monitor CD4 cell counts and viral load. 5 professional nurses indicated that sometimes when some patients decide to stop taking drugs this would be reflected by a change in the viral load it goes high. The following are supporting statements from interviews:-

“You keep on looking at the CD4 and viral load and if you see there is a change, especially if the viral load shoots up, then you wonder what is causing that.”

“.....you actually discover it when doing a viral load.”

Despite the belief by most professional nurses that CD4 cell count and viral load help to monitor patient's adherence to ART, one of the professional nurses had a different

opinion. He explained that he did not believe in sending blood to the laboratory for assessing patient's adherence to ART. The argument was that poor immunologic or virologic response could be due to poor adherence or other factors other than poor adherence. This is expressed in the following quotations:-

“You cannot assess adherence by drawing blood and sending it to the laboratory.”

“So finding that my patient is not responding immunologically does not mean that this person is not adhering. There are other factors that may make the drug or treatment not to work.”

4.3.4. Assessing or monitoring appointments

Professional nurses identified keeping of appointments as another method of assessing patient's adherence to treatment in the Capricorn District. The feeling was that patients who do not keep appointments whether for consultation or for drug refills are usually non-adherent. The following quotations are from the professional nurses and they support the importance of assessment in adherence to ART:-

“If it happens that this person is not.....respecting appointments, you have a clue.”

“Most patients who tend to miss appointments.....are non-adherent.”

4.4. THEME TWO: PROFESSIONAL NURSES STRATEGIES ABOUT MODIFYING FACTORS

The professional nurses strategies about modifying factors, was another main theme from the research findings in this research. The modifying factors were the extrinsic (environmental) factors that could be modified. This included the factors impacting on adherence and the possible cues to action that were also modifiable to increase a patient's likelihood to take medication. The theme was divided into two categories which are:-

1. Factors impacting on adherence to ART
2. Cues to action

Table 4.2. Summary of the two: Professional nurses strategies about modifying factors.

Main Theme	Category	Sub-Categories	Further Categories
Professional nurses strategies about modifying factors	Professional nurses strategies about factors impacting on the adherence to ART.	Factors that enhance adherence to ART.	-Continuous Counselling. -Health Education. -Personal Positive Motivation. -Patients satisfaction health personnel. -Giving patients hope and encouragement. -Supportive environments.
	Cues to action	Factors that do not enhance adherence to ART.	-Traditional medicine. -Religious beliefs. -Patients healthy states. -Lack of understanding about treatment. -Stigmatisation related to HIV. -Unsupportive families. -Economic factors.

4.4.1. Factors impacting on adherence to ART

Factors that impacted on adherence were found to be those for adherence and those against adherence. This category was divided into the following sub-categories and the findings are subsequently presented:-

1. Factors that enhance patient's adherence to ART.
2. Factors that do not enhance patient's adherence to ART

4.4.1.1. Factors that enhance patients adherence to ART

The professional nurses strategies about factors that enhance patient's adherence were found to be:-

- Continuous Counselling
- Health education to impart correct information to patients.
- Patients who have a personal motivation.
- Patients satisfaction with health personnel.
- Giving patients hope and encouragement
- Supportive environment.

These factors are discussed below:-

1. Continuous Counselling

From the finding of this research, professional nurses seem to perceive continuous counselling as a factor that promote patient's adherence. Counselling patients each time they visit the clinic, regardless of how long they have been on treatment was perceived as a promoting factor in the Capricorn District.

“Continuous Counselling, whatever time they come to the clinic, you keep on.....even if the patient has been on treatment for 2 or 3 years, but keep on talking and explaining.....”

“I think continuous counselling is what can keep the patient on adherence to ART.”

“We have to reinforce the information all the time”

“If you meet them and you do not counsel them, some of them will think that this is now the time to relax.”

2. Correct information (Health education) to patients.

From the findings, giving patients the correct information to enhance adherence seemed to be a strong factor. All professional nurses indicated that giving correct information to the

patients improved patient's adherence. In addition to being correct, the information given should be consistent, and in the right tone and attitude in order to be understood by patients. Four of the professional nurses continuously echoed the need for giving the right information to patients and how that influenced the way patients understood and adhered to treatment. The following are some of the direct quotations from interview transcripts:-

“Once you give them the correct information, they change their perception about the adherence.”

“Giving patients the right information, with the right tone, at the right time with right attitude, the patients will trust us and once they trust us, they will also try not to disappoint us.”

“What makes them adhere to this treatment is basically information first.....you give them the correct information.”

3. Patients who have a personal motivation

Eight of the professional nurses perceived patients' personal motivation in life and positive attitudes exhibited by the patients as factors that promote adherence to ART. These professional nurses felt that patients who had something to do in life would really want to live longer in order to achieve their goals. Such patients would more likely be loyal to treatment. This also depended on the patients' attitudes because according to the professional nurses, some patients even though might have something to do in life, their attitude towards treatment remains negative. Some of the personal motivations in life as noted by the professional nurses were having a job and having children especially in single mothers. Single mothers were perceived to be eager to see their children grow, resulting in a positive attitude towards treatment. Some of the professional nurses really perceived this to be an influencing factor to adhere to ART. The following are the quotations from the professional nurses regarding personal motivation:-

“In African setting, it is like having children to take care of at home is actually a motivation....a positive influence in adherence to ART.”

“Single mothers who are taking care of kids who have no fathers are motivated to live as long as possible to take care of these kids.”

“There are those who are highly motivated, who have an internal will,.....a very high self-sufficiency urge, they have this motivation to take pills.”

“Someone who has a job or doing something in life is motivated to take medication.”

“Patients who show a positive behaviour and a positive attitude towards the treatment usually recover in a very spectacular way.”

“Young men who are not employed, who stay with their mothers.....who really do not have much to look up to in life, tend to be a bit casual about everything.....their adherence pattern tends to change overtime.”

4. Patients satisfaction with health personnel

Professional nurses in this study seem to perceive patient’s satisfaction with the health personnel to be positively impacting on adherence. Patients are said to promise to return if they are happy with the services received. If they were not happy, they would rather leave and go to the private institution and pay and be satisfied. The following are some of the statements made by professional nurses regarding the importance of patient’s satisfaction:-

“Once they leave your consultation room, they are happy, they promise to come again.”

“Some of patients actually opted to go to the private because they could not talk to some of the professional nurses in the clinic.”

“No, they would rather pay (in private) for the medication and be comfortable.

5. Giving patients hope and encouragement

Giving patients hope for life, assuring them that they can still operate as normal and be important to the community only if they adhere was perceived to be a factor positively impacting on adherence. Patients also need positive reinforcement when they are healthy to keep on taking treatment. The following are the quotations from the professional nurses:-

“Tell them that they still have hope in life.....we can help them, they can still work, and they can still.....add to the community by taking medication correctly.”

“You are healthy now, it is only because you have been taking these drugs properly.”

6. Supportive environment

A supportive environment was perceived to influence adherence to ART. Some professional nurses think that patients are taking ART because of the pressure within their environment.

“They are adhering because of pressurethey take medication because of certain pressures like the treatment supporter, close friends or the nurse”

4.4.1.2. Factors that do not enhance patients adherence to ART

The professional nurse’s perceptions about factors that do not enhance adherence were found to include the following:-

- Traditional (belief) medicine
- Religious beliefs
- Patient’s healthy states
- Patient’s lack of understanding about treatment
- Stigmatisation related to HIV
- Unsupportive families
- Economic factors

A presentation of these factors as per professional nurses’ perceptions follows:-

1. Traditional medicine

From the research findings, the influence of traditional medicine seems to be impacting negatively on patients’ adherence. It is the professional nurses’ opinion that most patients in our African setting seek help from traditional healers after they are diagnosed with the HIV. Some patients seek help from traditional healers whilst they are already on ART. Professional nurses perceive this to be wrong since these patients get wrong information from the traditional healers. These views were expressed during the interviews as follows:-

“You know, in African tradition, most of our patients will have started on the traditional medicine.”

“Some patients still have the belief that traditional medicine can also help them.”

“ We have one case really, one patient who went to the traditional healer to have more information about AIDS, so really we thought that it was really wrong but anyway, he managed to come back.”

2. Religious beliefs

Professional nurses perceived religion to be negatively impacting on patients’ adherence to ART. The professional nurses explained that patients were advised to stop taking ART after joining some churches because the pastors claimed they would pray for the patients to cure the disease. So patients were given wrong information from their religious groups. These were the professional nurses’ quotations as regards to religion:-

“I have seen some of my patients stop taking treatment after joining this group of religion.”

“They were told not to take treatment, you just have to believe in this, you do not need to take medication, and you will be fine. I have seen patients go down and I was really wondering what it is and then they told me it was from the church.”

“You know the pastors have faith and they talk to patients.....that they really can cure some diseases by some magic power of God.”

“But there is even no proof from them to say that really they can cure the disease.”

“Those who are going to see the Pastor.....are sometimes given wrong information.....like they say that the virus is sometimes coming from the devil, it belongs to the Pastor to pray for them so that they get cured.”

Despite these views, four professional nurses highlighted that there are not many patients who have been negatively influenced by religion. This is confirmed in this quotation:-

“I can say there are few.....out of 1000 patients.....I have seen four cases.”

However, in terms of adherence, this can be significant due to the evolution of resistant strains. One professional nurse echoed that one non-adherent person could be a danger to the whole community.

3. Patient's healthy states

From the findings in this research, seventeen out of eighteen of professional nurses felt that when patients start feeling better, some of them stop taking pills and some start giving all sorts of excuses for missing treatment, appointments and medicine refills. Some patients are said to think that missing tablets for a short time will not have much effect on them since they are already well. The following were some of the professional nurses' views concerning adherence to patient's healthy states:-

“Often, when patients start to feel better, they actually make a decision by themselves to stop taking treatment.....they will say they stopped because they felt better.”

“So patients also feel like they are fine, and if they do not take treatment for two to three weeks, they will not see any difference.”

“At the start of treatment some will be fine with adherence and when they just get better, they become reluctant to continue and will start forgetting to take treatment, they become lazy to come to the clinic, and when they come, they are now healthy looking, they just say I forgot to collect my treatment, or I forgot to do my tests. You gradually lose them.”

Such behaviour could be due to patients' lack of understanding of the importance of adhering to treatment for life.

4. Patients lack of understanding about treatment

Some professional nurses think that if patients do not get enough and correct information about the treatment, they will not understand and will therefore not adhere properly. Some patients are perceived to find it difficult to understand that HIV exists. This is confirmed by the following quotations:-

“Non-adherence among patients is mostly when they do not understand the nature of the treatment, the importance of the treatment.”

“Poor adherence might be due to not giving them enough information.....if you explain to them well, they will adhere.”

“Sometimes they can even deny that HIV does exist.”

5. Stigmatisation related to HIV

Some of the professional nurses perceive stigmatisation to be a factor influencing patients not to adhere. According to the professional nurses, some patients have lost their jobs because they are sick due to HIV infection. Some patients hide their HIV status because of fear of being stigmatised. The following quotations expressed the professional nurses’ concerns:-

“Some patients lose jobs after being diagnosed HIV positive and adherence is affected as they are they not motivated to take pills.”

“There are a lot of them, they lost jobs because they were sick.”

“Up to now, there are people who have stigma, who hide HIV results and thereafter hide their HIV status.”

6. Unsupportive families

Some professional nurses thought that some families are unsupportive to patients who are HIV infected to such an extent that the patients end up hiding everything. This means that it becomes difficult for the patients to take their treatment. Four professional nurses commented:-

“People whose families are not supportive the patients are likely to develop denial attitudes.....People are likely not to adhere because they will try to hide things.”

7. Economic factors

The other factor that does not enhance adherence was found to be poor financial status. Some people are unemployed, and so they fail to secure transport fare to get to the clinic. Some secure transport fare to get to the clinic. Some do not have money to buy food at home, resulting in problems with taking medication. This is confirmed by the quotations from the interview transcripts:-

“They need to get help for transport to come to the clinic.”

“And maybe also get food at home.”

4.5. THEME THREE: PROFESSIONAL NURSES INTERVENTION STRATEGIES TO IMPROVE ADHERENCE TO ART

The following are the intervention strategies that the professional nurse implemented in Capricorn District of Limpopo Province in an effort to promote patients adherence to ART:-

1. Information and education

The professional nurse perceive that giving patients information through educating them has proved to be successful in assisting patients to adhere, some of the professional nurses perceptions include the following remarks:-

“The information is the one which is very important.”

“Correct information about HIV treatment, they get it from the health workers. In the village or anywhere else they go, they will get conflicting or twisted information so if we give them the right information.....the patients will trust us.”

2. Health workers and adherence guidelines

Another intervention strategy that has proved successful in assisting patients to adhere to ART in the Capricorn District, Limpopo Province is adhering to the national guidelines. The perception is that these guidelines are results of research and have proved to yield success elsewhere. This is confirmed by the following quotations:-

“The only way for us health workers to encourage adherence is to adhere to the policy and procedure guidelines that have been given to us.”

“For me, the only way to do this is to follow strictly on the guidelines.”

“They work (the guidelines) and the results we are having are due to the way we are implementing those procedures and policies.”

On being asked if there is any particular policy that has really proved to work, the use of adherence partners was mentioned. This came up as an intervention strategy, which is discussed below.

3. Use of adherence partner or treatment buddy

All eighteen professional nurses perceived the use of adherence partners or treatment buddy to be working in assisting patients on ART to adhere. The professional nurses explained that it is government policy. It involves asking the patient before they commence therapy to bring to the clinic somebody they are close to whom they trust enough to reveal their status, who will be supporting the patient in the treatment.

Some of the professional nurses were of the opinion that if the patient can disclose their status to someone whom they can trust, they feel better and relieved. The adherence partner is said to be possibly a friend, a relative, a sexual partner or any other person that can be trusted. The adherence partner is expected to attend the adherence counselling with the patient. The professional nurses also explained that this person is also supposed to be involved in the treatment taking of the patient. The professional nurses expressed the following opinions:-

“We have.....treatment buddy or adherence partner, who is to come with the patient the first time we initiate treatment, and then we try to influence the partner to be part of the treatment campaign and to keep reminding the patient. I have seen in some instances that it really worked.”

“The issue of a caretaker is important for adherence.”

“When you think the adherence is not good, then you ask him/her.....you say we think there is a problem here.....some of them are very active.”

“The patients need to remember to take pills at the right time at the same time everyday.....it’s difficult for one person alone.....when you are two, you are likely to miss less than when you are alone.”

“It helps the patient psychologically, not only because the partner will be reminding him of treatment to be taken, but the fact of disclosing their condition.”

Despite the effectiveness of the use of adherence partners in the Capricorn District, Limpopo province, professional nurses also explained that some patients are not very comfortable with that. The professional nurses perceive that some patients feel as if they are being forced to reveal their status to other people, or they feel the health workers are trying to refuse them treatment. Actually, the professional nurses make the patients

continue with treatment with or without the adherence partner if patients have problems of identifying one. The following quotations confirm this:-

“Some people feel that we are forcing them to reveal their status to others, like we are trying to refuse them treatment because they did not bring a partner and things like that.....”

“If somebody say no, I am able to cope with things myself, I do not need to reveal this to anybody, and I do not see whom I can trust.....you cannot say no, you are condemned to death just because you did not bring a partner. This person has the right to treatment.”

4. Communication skills

Communication skills are perceived by professional nurses to work in the provision of ART successfully. It was noted that the way health workers talk to patients does influence adherence. Six professional nurses highlighted that some patients left the primary health care facility when they were not happy with the communication skills of some support staff to the professional nurses. The patients left the free treatment and opted to pay in the private sector. The professional nurses' perception is that showing interest in what the patient has to say makes them to open up and they usually do quite well. The following were some quotations indicating how the professional nurses believe communication skills to have worked in assisting patients to adhere to treatment:-

“But what I have seen is that, if you are open with the people, I normally experience it.....when you are open and you allow the patient to speak out their feelings, their concern, their worries, their expectations of the treatment, they tend to be so frank even if they have not done things right.....they just come and tell you.....I made this mistake, what do you think I should do now.”

“Openness, the way health care workers talk to patients, in other words communication is the key to improving adherence.”

“Once you take time to ask people what is going on in their lives, and they really see the interest you have in them.....they tend to be very open.”

5. Addressing the religious beliefs

Since some of the professional nurses perceived that the wrong information that people get from churches interfered with the adherence, the intervention strategy was to address the pastors from the churches. The professional nurses stated that they usually pay pastors a visit to try and discuss with them the information to be given to people so that people do not receive different messages:-

“We also go to the pastors, we talk to them if they can also teach, if they can give the correct information in the churches about HIV/AIDS.”

6. Community Mobilisation

On being asked what has been done that has proved successful in promoting patients adherence to ART, six professional nurses explained that giving information to the community through community mobilisation has helped. The following quotations from four professional nurses highlight the need for community involvement in the adherence to ART:-

“We mobilise the community by giving them information and request for public speeches to disseminate information on the importance of disclosure, adherence to ART and healthy lifestyle.”

7. Continuous Counselling

Continuous counselling was identified as one of the intervention strategies that have been proved to help in the Capricorn District. Four professional nurses testified that counselling patients each time they come to the clinic has worked with the following quotation:-

“Continuous or on-going adherence counselling has proved to help most patients to adhere to ART.”

Table 4.3. Summary of theme three: Professional nurses intervention strategies to improve adherence to ART

Main Theme	Category	Sub-categories	Further Categories
Professional nurses intervention strategies to improve adherence to ART.	Professional nurses cues to action.	Professional nurses intervention strategies.	<ul style="list-style-type: none"> -Information and education. -Health workers adherence guidelines. -Use of adherence or treatment Buddy or supporter. -Communication Skills. -Advise on life styles. -Community mobilisation. -Addressing the religious beliefs. -Continuous counselling. -Multiplication of information.

4.6. SUMMARY

This Chapter dealt with the presentation of the research findings. The demographic characteristics of the participants are presented. These included the general clinical experiences and the experience in the provision of ART. Content analysis was used to analyse data. The three main themes were the professional nurses' strategies around monitoring adherence to ART, professional nurses' strategies about modifying factors and professional nurses' intervention strategies to improve adherence to ART. Each of these main themes had several categories that were designed to further reduce the data into smaller manageable chunks.

The following Chapter is on the discussions, the conclusions and recommendations according to the researcher.

CHAPTER 5: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1. INTRODUCTION

This Chapter presents a discussion, the conclusion and recommendation made by the researcher. The discussion draws from the research questions and the theoretical framework. In this discussion, the researcher compares and confirms these findings with existing literature related to adherence to ART. Conclusions are drawn from the research findings and recommendations are made.

5.2. DISCUSSION

In this section the main themes and the categories that were developed during data analysis will be discussed. This was done in order to meet the research objectives and to make sure that the research questions are answered. The participants' demographic data is discussed. The professional nurses' strategies around monitoring adherence to ART, professional nurses' strategies about modifying factors and professional nurses' intervention strategies to improve adherence to ART follow the discussion.

5.2.1. The demographic characteristics of the participants

The demographic characteristics of the participants that were seen to be very useful for this research were the number of years of experience in the provision of ART to patients in the public sector in Limpopo, and the attendance of adherence counselling course in Limpopo. The professional nurses experiences in managing patients on ART in the primary health care facilities allowed them ART. This also made the professional nurses resourceful when it came to sharing their recommendations on how to assist patients who are poor adherents to ART. The participants were able to identify factors that they perceived to be impeding patients adherence to ART in the Capricorn District from their experience. The participants shared some strategies they used to improve adherence to ART.

5.2.2. Professional nurses strategies around monitoring adherence to ART

The methods of monitoring or assessment that used by the professional nurses in the Capricorn District are pill counting, self-reports, monitoring CD4 cell counts and assessing patients appointments. All professional nurses talked about pill counting as a method used for monitoring adherence to ART, some professional nurses would do pill counting for all patients that they consulted, other professional nurses would do pill counting only for patients who had just been started on therapy, as they had explained during interviews. The failure to do pill counts for all patients could be because pill counting is said to be time consuming and the task was left for the pharmacy personnel. Pill dumping was raised as a problem limiting the method. Self-reporting then appeared to be a better option.

The majority of the participants talked about self-reporting. The limitation associated with self-reports as discussed by the professional nurses was that in some instances, patients did not tell the truth. The professional nurses should reassure the patients before asking adherence questions and that the information will not be held against them. Monitoring of CD4 cell count and viral load as a method of assessing adherence was mentioned with fixed feelings among the professional nurses in the Capricorn District. Some professional nurses mentioned the use of CD4 cell count and viral load for monitoring adherence. Some professional nurses would reinforce patients' information by the positively changing CD4 cell counts and viral load as evidenced in the blood test results. Some professional nurses did not believe in this method of assessment. The reason was that there are other factors that affect immunologic and virologic responses other than adherence periodic viral load and CD4 cell count have therefore been identified as one of the suitable methods for monitoring adherence in Limpopo.

Monitoring the way patients keep appointments is also used to monitor patients' adherence in the Capricorn District. Poor adherence is noted when there are no timely refills of medication.

5.2.3. The professional nurses strategies about the modifying factors

This discussion is on the factors that are modifiable in the patients' environment (extrinsic factors). The discussion is divided into factors impacting on adherence and the cues to action from the professional nurses' perspective.

5.2.3.1. Factors impacting on adherence

The discussion on factors impacting on adherence is further divided into factors that enhance patients' adherence and factors that do not enhance patients' adherence. Dividing the discussion into factors allows for simplification of the presentation.

Factors that enhance patients' adherence

- Professional nurses in this research perceived the following factors to be enhancing patients' adherence to ART in Capricorn District, Limpopo Province: Correct information, continuous counselling, positive personal motivation, patients understanding of treatment and patients' satisfaction with health personnel, giving patients hope and encouragement and supportive environment.
- Continuous counselling was perceived by professional nurses to be assisting patients to adhere to therapy. Giving patients standard correct information during continuous counselling is perceived by professional nurses to enhance patients' adherence to ART. Giving patient correct consistent information is important for making them understand their disease and the treatment involved. Patients' understanding of the nature of the treatment was perceived by professional nurses from this research to be enhancing adherence.
- Some professional nurses think that their patients' in the Capricorn district are adhering to treatment because of the way the professional nurses communicate with them. Professional nurses in the Capricorn district perceived that giving patients hope and encouragement. When they do well motivates them. Sharing of positive information about the patients' health such as positive changes in CD4 cell counts and viral load is important in encouraging a high level of adherence. Supportive environments were found to be impacting positively on adherence to ART. Professional nurses perceive that some of the patients take treatment to please others like friends, families or nurses.

Factors that do not enhance adherence

- Professional nurses in this research perceived the following factors to be negatively interfering with patient's adherence to ART: Traditional medicine, religious beliefs, patient's health states, patient's lack of understanding, stigmatisation, unsupportive families and economic factors.
- Traditional healing was perceived to be impacting negatively in patient's adherence to ART. Professional nurses are of the opinion that traditional medicine is more preferable in our African setting. Unfortunately, patients get wrong information from the traditional healers. Traditional healers give patients wrong information, which is of concern to professional nurses in the Capricorn District, Limpopo Province.
- As much as people are encouraged to be religious, the concern that was raised by professional nurses was that pastors were giving people wrong information as well. Some patients are advised by the pastors to stop taking ART because the pastors would pray for them and the patient would be cured.
- In this study, religious beliefs, was among other factors, a reason for patient's non-adherent behaviour. This makes religious beliefs not only an African concern but also a concern that affects other countries.
- Professional nurses perceived patient's lack of understanding about HIV/AIDS and the nature of treatment as a factor that does not enhance patients to adhere to therapy. This lack of understanding contributed to a decrease in adherence to treatment after patients felt healthy. This lack of understanding of the nature of treatment and its negative implications on adherences was a concern among professional nurses. When patients got healthy after being started on treatment, they forgot to take the pills, they started missing appointments and thought missing treatment for a short while will not make much difference. This was all because they did not have the proper understanding about HIV/AIDS and treatment.
- Stigmatisation was perceived to be one of the factors interfering with patient's adherence to ART by professional nurses in the Capricorn District. Some patients were reported to have lost their jobs after they got sick. Professional nurses report on patients being too demoralised to take

treatment. Some patients are perceived to hide their status and not seek treatment.

- Economic factor has also contributed to poor adherence among the unemployed. This was because at times patients would fail to get money for transport to come to the clinic. Because of poor financial status, some patients failed to get proper food, thus adherence to treatment was affected.

5.2.4. Professional nurses intervention strategies to improve adherence to ART

This discussion is on the intervention strategies that have proved to work in the Capricorn District in assisting patients to adhere to therapy. Some professional nurses in the Capricorn District have proved that giving patients information and educating them has worked. Some professional nurses have experienced success with adhering to the National ART guidelines. A particular procedure that was highlighted by some participants was the use of adherence partners. The use of adherence partners is perceived to free the patients psychologically besides the support and reminder to take treatment, the person finds a person to disclose to.

Community mobilisation has been found to help in getting information to the community since poor adherence was also attributed to lack of proper information in the district. Community mobilisation also helps in addressing the problem of stigmatisation. Some professional nurses indicated that since some religious beliefs interfere with patient's adherence to therapy, pastors have been advised to give correct information to the congregation.

5.3. CONCLUSION

Professional nurses seem to understand their patients and this fosters good relationships between professional nurses and patients. The professional nurses' good communication skills help them become quite knowledgeable about the factors that interfere with their patient's adherence to ART. This in turn has resulted in them implementing the appropriate intervention strategies to address the issues related to adherence. This is quite encouraging for the National Antiretroviral Programme considering the high cost for HIV treatment per person per month. As much as the professional nurses seem to understand the importance of adherence monitoring for success of ART, assessment of adherence was not consistent among all professional nurses.

Some professional nurses did pill counting and self-reporting for all patients that they consulted. Four professional nurses admitted during the interviews that “Monitoring adherence is a complex issue, but unfortunately a very essential component of HIV treatment.” Professional nurses appeared a bit relaxed on monitoring adherence for those who had been on treatment for a long time. The most frequent question asked by professional nurses was “Are you taking the pills well.” This question sounds insufficient and there was no probing as to whether they have missed any doses before. Pill counting was not consistent most probably because it is known to be time consuming. The professional nurses could have been quite busy. And so pill counting was left to the pharmacy personnel for patient who have been on treatment for a long period. Some professional nurses who believed in following ART guidelines would do pill counting for all the patients they consulted.

Professional nurses work very long hours in the delivery of ART. They understand that patients remind themselves to take their medications with cell phone, watches and alarm clocks, and with the help of treatment supporters. Most professional nurses agree that there are two keys to high adherence that is having a committed and informed treatment supporter and disclosing to people who know the patient. The complexity of adherence likely requires that professional nurses use all of these approaches to try to help HIV-infected patients with the monumental task of taking medications according to a specific schedule for the foreseeable future.

According to professional nurses in the study, pill dumping and not telling the truth during self-reporting are some concerns that affect assessment of adherence. The current adherence methods in the Capricorn District therefore need to be improved. The results of this study can be generalised to the professional nurses in the Capricorn District since all the professional nurses in the district were participants for the study. Generalising the results to similar settings can be done with caution after analysing the methodology followed. These results cannot be generalised to the whole of Limpopo Province.

Whatever approaches a treatment program incorporates. Adherence strategies will be most effective when they are considered and integral part of routine ambulatory HIV care. Through effective adherence strategies such as those highlighted throughout the research, people with HIV have the research, people with HIV have greater opportunities to achieve optimal viral suppression and desired health outcomes.

5.4. LIMITATIONS OF THE STUDY

The limitation to this research was that initially, the researcher was supposed to interview twenty (20) professional nurses but unfortunately according to the staff structure, some primary health care facilities had three (3) and some four (4) professional nurses.

5.5. RECOMMENDATIONS

Recommendations based on the findings have been made for the health system and for further research by the researcher.

5.5.1. Recommendations for the health system

- Unannounced pill counts can be developed to curb pill dumping even though this can be intrusive and cumbersome.
- To increase the validity of self-reporting, a preamble needs to be done before asking adherence questions. This is to reassure patients that the information will not be held against them and that problems with adherence are nearly universal, so that they should tell the truth.
- Nurses should do the pill counting for all the patients before they get into the consulting room since professional nurses seem not to be able to do it routinely most probably because of time and pressure of work.
- Busy primary health care facilities should be run by at least six (6) professional nurses especially on busy days to allow for proper adherence assessment and continued monitoring and counselling by the professional nurses.
- Professional nurses need to have standard information on the use of CD4 cell counts and viral loads for monitoring adherence. The professional nurses in the Capricorn District could probably have meetings where they share such information and other experiences.
- Stigmatisation remains a problem in Limpopo Province. There should be a system for identifying individuals to serve as treatment supporters to ART patients. The treatment supporter must be someone they see nearly every-day and who is willing to be responsible to remind the patient of what is needed to benefit from taking ART. The issue of disclosure should be addressed regularly by counsellors who see patients when they return to fill their monthly prescriptions.

- Using patient tracers appears to be an effective strategy for reducing default rates. They visit ART patients missed appointments. By providing additional resources, the Department of Health could reduce default rates by through the use of tracer teams in all ART programmes.
- There is a need for the conventional medicine to work in collaboration with traditional medicine and religion. Traditional healers and pastors should be well informed about HIV/AIDS and information communicated to patients should be consistent.
- Professional nurses need to be trained in the work that they perform in primary health care facilities. Training needs to be assessed on a regular basis to ensure that professional nurses are well equipped to do their work in the primary health care facility.

5.5.2. Recommendations from professional nurses in the primary health settings

Because of the professional nurse's experience and position in the provision of ART, the researcher found it necessary to allow professional nurses to cite their recommendations to improve patient's adherence to ART.

- Since the danger of the evolution of resistant strains is a threat not only to the non-adherent individual, but also to the community as a whole, strong follow-up of non-adherent patients was recommended. This means the current system of following-up non-adherent patients in the Capricorn District should be improved.
- Creating counselling jobs for the ART patients who lost their jobs was another recommendation. These people as counsellors, would be better, acceptable to other patients and can share lived experiences with patients.
- Giving individualised care was another recommendation from professional nurses. This recommendation was given because patients are never the same, so they need individualised different approaches. No literature has been found to support these recommendations.
- The information that professional nurses conveyed to patients was variable. The professional nurses in their practice gave patients hope but warned them that hope depended on adherence basis.

5.5.3. Recommendations for further research

- A research study exploring the knowledge of pastors and traditional healers to improve adherence of patients to ART.
- The research study on the effect of the defaulter tracing system in improving adherence of patients to ART.
- The research on the extent and quality of counselling in improving adherence of patients to ART.
- The research to determine which interventions are relevant for which patients and when.

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ANNEXURES:-

A: Approval from Medunsa Research and Ethics Committee

B: Letter seeking permission from the Department of Health: Limpopo Province

P.O. Box 1917

POLOKWANE

0700

29.08.2014

Department of Health

Ethics Committee

Private Bag x9302

POLOKWANE

0700

Sir/Madam

Request for permission to conduct the research in the primary health care facilities

I am a student at the University of Limpopo (Turfloop Campus) studying towards Masters degree in Public Health. As part of the requirements of my degree, I am required to complete a treatise or research study. The study aims to describe the strategies utilised by professional nurses in the primary health care facilities regarding adherence of patients to antiretroviral therapy, Capricorn District, Limpopo Province.

To achieve this would like to request participants from your primary health care facilities to be interviewed. Prior to the commencement of the study, the participants will be provided with information regarding possible risks and benefits, and their rights as research participants. A written consent will be requested and confidentiality of the participant's identity will be guaranteed by using codes instead of the participant's names.

The results of the research will be made available to the primary health care facilities to be interviewed. Prior to the commencement of the study, the participants will be provided with information regarding possible risks and benefits, and their rights as research participants. A written consent will be requested and confidentiality of the participant's identity will be guaranteed by using codes instead of the participant's names.

The results of the research will be made available to the primary health care facilities. You have the right to query concerns regarding the study at any time. Telephone numbers of the researcher are provided. Please feel free to call these numbers.

The study has been approved by the Medunsa Research Ethics Committee (MREC). Queries with regard to your rights as a research participant can be directed to the MREC where you can call the Director.

Participation in this research project is completely voluntary and professional nurses are not obliged to participate, neither will they be negatively affected by withdrawal at any stage, from the research project. The study may be terminated at any time by the researcher or the MREC who initially approved the study. Although the participants identity will at all times remain confidential, the results of the research study may be presented at scientific conferences or in specialist publications.

Your assistance in this regard is highly appreciated.

My contact numbers are as follows:-

Cell: 072 519 3803

Work Tel: 015-267 1114 x251

Yours Sincerely

Ms Maano Lydia Phashe (Researcher)

Dr N.J. Ramalivhana (Supervisor)

C: Letter of approval to conduct research: Department of Health: Limpopo Province

D: Letter of approval to conduct the research from Capricorn District Manager

E: Research Interview Guide

1. How do you monitor adherence of ART in your clinic?
2. What are the factors that influence adherence to ART in your clinic?
3. Which strategies or interventions do you currently use or plan to use at your clinic to improve adherence to ART?

F: Consent form for participants in the research

Statement concerning participation in Research Project.

Name of the Project

Strategies utilized by professional nurses in the primary health care facilities regarding adherence of patients to antiretroviral therapy, Capricorn District, Limpopo Province, South Africa.

I also understand that:-

- I am free to terminate my involvement or to recall my consent to participate in this research at any time I feel like it.
- Information given up to the point of my termination of participation could, however, still be used by the researcher.
- Confidentiality will be maintained by the researcher and that the identity will not be linked to information.
- No reimbursement will be made by the researcher for information given or participation in this project.
- I may refrain from answering questions should I feel these are an invasion of my privacy.
- By signing this agreement I undertake to give honest answers to reasonable questions and not mislead the researcher.
- I will be given the original copy of this agreement on signing it

I hereby acknowledge that the researcher has:-

- Discussed with me in detail the purpose of this research project
- Informed me about the contents of this agreement
- Pointed out the implementation if signing this agreement

In co-signing this agreement, the researcher has undertaken to:-

- Maintain confidentiality and privacy regarding the participants identity and information given by the participant
- Arrange in advance a suitable time and place for the interview to take place.

- Safeguard the duplicate of this agreement.

INFORMANT: -----RESEARCHER-----

DATE:-----DATE-----

G: Pre-test of the interview guide

Pre-testing interview was done on the 24.10.2014 and it took 30 minutes.

Questionnaire guide used for pre-testing

1. How do you monitor adherence to ART in your clinic?
2. What are the factors that influence adherence to ART in your clinic?
3. What are the strategies or interventions that you are using in your clinic to improve adherence to ART?

I: Interviewer R: Participant

I: What do you think are the main factors that influence adherence to ART in your clinic?

R: Okay, can we start with the barriers?

I: Yes, we can start with barriers that you perceive as affecting your patients from your experience actually.

R: Many of our patients, particularly in the public sector are not educated patients.

I: Okay

R: and therefore its.....eh....is one thing getting information across to them which is very difficult.

I: Is it?

R: So that is one thing most of our patients are from very low-income groups.

I: Okay

R: The other thing that obviously comes along with that is ...eh...quite a number of them do not have resources.

I: Okay, yeh

R: Okay, and sometimes you will be surprised when you ask them why you came late for your appointment, why did you come late to collect your medication.

I: Yes.

R: They say I do not have money to get a taxi to the clinic.

I: Okay, Yes

R: So those are issues that.....eh.....obviously you think there is free medication, but sometimes people sometimes find it difficult even to get to that free medication because they do not have money to get to the facility.

I: Okay.

R: So it is a barrier, but there are other factors obviously when you talk of most of our patients, they have very deep-rooted traditional beliefs.

I: Okay, Okay

R: You will be surprised sometimes they will tell you.....eh.....mm....eh....I do not think I can take medication because either mu partner has died and therefore I need to take traditional medicine for whatever rituals.

I: Okay, yeh hmm

R: Yah, they are barriers, so patients do not take their medication appropriately because of some of those reasons. Some of them they go.....eh.....look....ah.....ah...it is usually an issue of sometimes distance.

I: Yes

R: Some change the clinic facility and because they think here its fast track, they will get medication quickly and immediately they get medication they go away.

I: Okay

R: Then they have problems now later on for follow up visits because of the distance.

I: Okay

R: most of the patients do not want to be transferred to the areas where they come from, but they still want to continue with therapy, but find it is a barrier in a sense because of distance.

I: Okay, so does it mean they will be coming from an area where there is no treatment centre.

R: Eh most.....some....eh even if there is treatment because now there is the roll-out programme in the whole country, there are quite a lot of treatment centres around even so, because ofeh...for some unknown reasons, you find the thing that.....eh... although there is a lot of talk about stigmatisation, a lot of people still feel that they cannot be known to be taking medication, where they are coming from.

I: Okay

R: They would rather come to a place which is far away so that they are as few people as possible who know that they are taking ART.

I: Okay, Okay, what about like besides the barriers do you think there any facilities to adherence that you think there any facilities to adhere that you would want to highlight like the positives.

R: Eh, what would you be probably particularly interested in that? Would you like to give me an example?

I : Okay, Yes.....what I mean is I think you have some patients who do not adhere right.....but maybe say, there are some who are better ...right...

R: Uhhh....uhhm....

I: What do you think makes them better, what really....or maybe you have none?

R: No, it's a paradox there ideh.....the way I am looking at it, eh in our experience , those we tend to counsel....we manage to counsel.

I: Yes

R: Alright...eh... the people who seem to do better in terms of adherence, the way I have seen it myself, in fact when I compare with those are....eh....terrible defaulters.

I: Yes

R: It is sometimes those who are eh terrible defaulters, are sometimes those who are very well educated.

I: Is it?

R: That is why I was saying it is a paradox. Those who are very well educated, who seem to think they have understood, alright.

I: Uuhm

R: Those are the real culprits who would come back and say that they missed their medication by three hours and things like that.

I: Okay

R: The people who are...eh...who have a very humble kind of background, sometimes when you explain to them, this you do not miss, they seem to take it as a gospel truth.

I: Okay

R: Eh, so I do not know whether I should say thateh.....contradicting myself by saying that apparently after you have counselled them, those who have a humble education tend to do better than those who are well educated, I do not know why.

I: Uuhm

R: Yes

I: How do you assess or monitor adherence of patients in your facility?

R: Eh, usually.....we assess each patient that comes to see us, we want to see their pills

I: Their pills?

R: Uuhm, usually we count how many are remaining from the time they were last seen. Usually there is a chart that they are given at the pharmacy, that gives the number of pills given at the time they were seen by the doctor and so essentially it's a matter of trying to see how many pills are still remaining from the time they were given supplies, that we follow up usually at each visit but secondly, we also enquire, you know general things like how many doses have been missed. Whether the patient has missed any doses, by maybe how many hours like they skipped and how many minutes, those questions are posed to them.

I: Okay

R: So at each visit, we ask those general questions. We also....eh.....want to ask generally how they are taking the medication because some of them....i mean ..if they are taking the medication with traditional medicine, sometimes we ask them, because adherence...eh..if taking traditional medicine as well as those are the things that will affect treatment.

I: Okay

R: So we usually, indirectly ask open-ended questions....like last time they took traditional medicine, to try and help us see if there is any problem.....eh.....with....eh....and find out really, if they are having any trouble taking medication. So there are many ways we try to go around it because sometimes they do not come out open.

I: Okay, hmm, so I mean, that is your way of assessment on adherence to therapy, do you think that is the best you can do?

R: Oh, well. With the circumstances, given the scenario now, probably that is the best we can do.

I: After we talked about communication as being a barrier, money for transport that is resources and a distance how do you think the non-adherence patients can be best assisted? What is your own view?

R: Okay, for instance.....eh.....the issue of distance. I try to by asking at each visit whether they have changed their address, so that they be transferred to the nearest facility, some refuse because of the stigma. This can be addressed in the campaigns, it may go a long way trying to handle this area of distance. I do not know, you see if at our level there is anything much that we can do about our resources to most of our patients because alleviation of poverty will address some of the issues really on adherence, because if a patient cannot afford a taxi, it is not the nurse who is going to provide that, so it is an economic factor thateh....could probably be addressed by the government.

I: Hmm, by the Government

R: If we have more nurses in the facilities that are providing ART, I think sometimes we will overcome this.....probably we will overcome that barrier quite a great deal.

I: Okay, do you have any other special experiences with patients especially pertaining to their adherence that you might want to highlight that, can also help maybe in improving patients adherence.

R: You know what, one of the other problems I should have mentioned is that because I have had a lot of fallouts, particularly from ladies.

I: Okay

R: But, probably it still gets to the problem of disclosure and I think many of the women or ladies who fall out, it is basically because they have a partner...they are on treatment... either when they started treatment, they did not have a partner or they could have a partner at the time of treatment but they have not told their partner and then they start treatment, and then you start having problems with adherence and timelessly taking pills because the partner does not know.

I: Uuhm.....Uuhm

R: And they are hiding from the partner and many of them have fallen out and sometimes you ask now....look, why can't you tell our partner? It becomes a big issue. There is at one time when I had a very terrible experience where the lady just said...I cannot , that guy is the one who is feeding me, he is the one who is...right now, I do not have the stress of not having money.

I: Hmm....hmmm

R: He provides me with every single thing, now if I tell him, that will be the end, and he will kill me. I would rather stop taking the medication.

I: Is it?

R: Oh no, so it is the aspect as well that contributes to poor adherence.

I: Okay, it means they do not also mind infecting their partners.

R: No, they don't, at that point like the example I gave, she would not mind, in fact the way I discovered is that she had gone out and she had missed her treatment by eh a week.

I: Oh, Uhhm....hmm

R: So, they do not use any protection and that when they have chosen not to tell.

I: Do you think the majority of patients are adherent or non-adherent?

R: Looking at the number that we had, the past two three years, the cumulative figure that we had, and the few whom we have started, on 2nd line either due to non-adherence. I think that on a large scale, we have a very good take of good adherence.

I: Okay

R: Yes, certainly more people have good adherence. But obviously there is a proportion that is eh poorly adhering but it is not as big.

I: Okay, not as big?

R: No, no not from the statistics that we have even those who are on 2nd line if we were to assume that all of those on 2nd line are poor adherents, they are still very few compared to the total number of patients.

I: Is it?

R: Yah.

I: I think we have come to the end of our interview. Thank you very much for the information. Now I will switch off the voice recorder.

Annexure H: Data analysis illustration of interview transcript

Interview transcript: Professional nurse no. 15

31 October 2014

I took 30 minutes.

The process of informed consent took place, just prior to starting the interview session, then the session started, the voice recorder was switched on after the informed consent was obtained and the purpose for the use of voice recorders was explained and permission granted to use the voice recorder.

Comments on the right are written in bold. The codes that were used from these categories are:-

1. Professional nurses strategies around monitoring adherence to ART (**PNS-M**)
2. Professional nurses strategies about modifying factors. (**PNS-F**)
3. Professional nurses intervention strategies to improve adherence to ART. (**PNS-I**)

I-Interviewer

R- Participant

I: Okay, we can start, right?

R: Yah, it is fine.

I: Okay, please tell me about your professional background, how you got to be one of the professional nurses working in the primary health care facility in the Capricorn District?

R: Actually, eh. I have been practising as a nurse for almost 20 years....I can say (**professional nurse experience**)

I: Okay

R: And I started being involved in HIV/AIDS management or treatment in 2002. (**professional nurse's experience in providing ART: 12 years**).

I: Okay

R:eh we started as a project for staff at the hospital.....

I: Uuhmm....

R: And then the National Programme started in 2004. (**professional nurses experience in providing ART to patients on the National ART Programme: 10 years**).

I: Okay, Okay, eh.... Your patients here, do you think they adhere to treatment?

R: adhering?

I: Yes, adhering, do you think they adhere to treatment?

R: You know, there are about two groups I think I can say. There are some who....they adhere, there are some who are not that good adherents because 1. They start treatment and some of them will be fine on adhering and when they just get better, some of the patients then become reluctant, they start forgetting to take treatment, they become lazy to come to the clinic. (**patients initially motivated to take treatment, when better, poor adherence, forgetting**).

I: Okay, Okay

R: So they are the ones also, slowly you can lose them.

I: Okay.....you lose them.

R: Then there are also other type they are adhering because of pressure, I mean they take drugs because of certain pressures like relatives, close friends, partners or the nurse when they come here.....that is why they act like they are really taking but after some time they come and tell you they are taking the drugs, but the truth is they are not taking the drugs at all. (**positive influences on adherence, patients giving false self-reports to appear adherent**).

I: Okay

R: Now, you keep on looking at the CD4 and viral load, and if you see there is a change, especially the viral load, it just shoots up then you wonder what is causing that (**monitoring and assessing adherence**).

I: Oh, is it?

R: Yah

I: Okay....Okay

R: And when you sit down with the patient and try to talk to them some admit and some of them they do not tell you that I was.....eh.....skipped this treatment. (**Assessing adherence self-report**).

I: Okay

R: But there are other patients who have been on treatment for a long time, so they also feel like they are fine, and if they do not take treatment for two or three weeks they will not see any difference. (**patients poor understanding impacting negatively on adherence**).

I: Oh, okay, they do not see any difference.

R: Yah, so also they do that.

I: Okay

R: Yah..

I: Besides noticing non-adherence using viral load or CD4 counts, do you have any other method that you can use to assess patient's adherence?

R: We have a nurse who ask the patients to give her containers he took last time because they have to return it every time for refill or when they come to see the nurse, we check it and see if this person really.....we do pill count and see how many pills were given before and how many came back.....I mean they came back with, and then we tell the difference. (**pill counting**).

I: Okay

R: Yes, but you see that sometimes that patient can be clever also.

I: Yes, Yes

R: They can remove and throw them away

I: Oh, Okay

R: They can remove and throw them away.

I: Oh, Okay

R: Yes, and the next thing they are empty.

I: Okay

R: But you see...Some of them we catch them from there.....You but look at these tablets or pills, they are more than what you are supposed to bring. (**monitoring and assessing adherence**).

I: Yeh.....Yes Okay, so you do that to everybody?

R: I do not do to every patient, but of course, I do for those who have started for the first three months.

I: Okay

R: And when it goes to the 6th month, and I see patient with good adherence, then I relax a bit. (**professional nurses relaxing on pill counting for adherent patients**).

I: Okay, do you think maybe their belief in treatment does affect or influence their behaviour ? the belief in treatment I mean?

R: Some believe, why I say.....this is because there are few who are not really sure.....eh.....that they believe in thisthe drug eh because you know in African tradition, most our patients will have started on traditional medicine.....(**traditional medicine preferable**).

I: Yes

R: But some still have the belief that traditional medicine can also help them. (**belief in traditional medicine**).

I: Okay...Okay

R: Those are very difficult to know which one they trust now. And the new thing which come in, the faith, there is a lot of new religion that come with it. I have seen some patients stop taking treatment after joining this group of religion. (**the effect of religion**).

I: Yes,

R: And they are told to just believe in this, you do not need to take any medicine and you will be fine and I have seen the patients go down. **(patients advised not to take therapy by their religion).**

I: Is it?

R: Yah. And I was really wondering what is it and then they say it is from the church.

I: Okay.

R: Yah. And I ask what is going on? And they say...eh....nurse, you know I had to participate in this church and they told me to stop treatment, I will be healed. **(negative effect of religion to adherence).**

I: Alright, in your experience in the management of patients on ART, what do you think are the factors that wouldeh....influence them to adhere to treatment?

R: You know....Counselling is aand it is not one.. is continuous counselling. Whatever time they come to the clinic, you keep on.....even if the patient has been on treatment for two to three years, but keep on talking and explain...eh.....that ...eh..how could the treatment....and if they have already seen the difference which is there.....that you see you are healthy now, its only because you can take these drugs properly, so you see, I think continuous counselling is what can keep the patient on adherence. **(Continuous Counselling enhancing adherence....encouraging patients in a healthy state to keep adhering/ perceived benefits).**

I: Is it?

R: Yah. If you meet them between and you do not counsel them, some of them will think that this is now the time to relax. **(effects of lack of continuous counselling not enhancing adherence).**

I: Okay, what really influence them not to adhere?

R: Some of them are unemployed, they are staying far from the clinic, then they need to get help for transport to come this side (to the clinic). **(unemployment- no transport fares to get to the clinic).**

I: Okay

R: Maybe the food at home. So this can be economic wise. (**Lack of food- negative effect to adherence**).

I: So, if they experience such problems, what do you do to help them adhere?

R: As I said, counselling. You pull the patient back again, sit down talk, speak to them and try to explain why they have to continue to keep on taking the drug. (**intervention counselling, communication**).

I: Okay.....Okay

R: Yah..

I: Like you mentioned counselling, and proved to really increase adherence, according to your experience, anything else that you have proved it worked from your experience?

R: You know, we have a treatment buddy or treatment supporter or adherence partner, who come with the patient the first time when we do the initiation, and then we try to influence these partners to be part.....even if maybe they are not the ones who take.....but the issue will be to keep on reminding the patient. And I have seen in some circumstances it really worked. (**intervention strategy**).

I: Is it?

R: When you think the adherence is not good, then you call the partner.....the adherence partner, then you ask them.....we think there is a problem here.....we see there is a problem here. Some of them, they are very active. (**effectiveness of adherence partner**).

I: Okay, so the adherence partners, who are.....what relationships are they supposed to have with the patient? Should it be a spouse? Should it be a relative or a friend?

R: We give the choice to the patient to choose or ask them that bring somebody whom you trust like the first person they told their HIV status. (**adherence partner to be someone trusted by patient**).

I: Okay

R: Or to disclose if I may say. If the patient had guts to disclose to that person, then he has trust in that person. Stigma is still going on. Whatever we say, we are fighting, but it is still there. **(Stigmatisation)**.

I: Yah....yah...

R: So we tell the patient to try to get somebody who is close to whom to disclose the HIV status and who can come to the clinic with him or her and we talk to them. So if you see this person does not have any idea whom to choose, then we give them a choice. **(encourage patient to have treatment supporter)**.

I: Okay, is there anything you would like to share or a recommendation to the system or anything?

R: There are some patients who appreciate that after taking this treatment, now they feel much better, they are back to their normal life. And I think my idea was, if we still use these.....as the health sector.....to use the same people again, to empower them to act on this counselling. **(some patients appreciate treatment, creating counselling, job for the healthy patient)**.

I: Okay

R: And issues of all HIV, they are the ones who can talk and they tell us the experience they have from the treatment they take, the social, how they think the situation is, so as to help the other ones because there are people who have stigma, who hide it at home up to now. There are still people who know their status but they do not want to come for treatment and these are the only people to empower them. There are a lot of them, they lost their jobs because they were sick after they get help now, of course, we encourage them to go back to work, but where are they now! **(Using life experiences to counsel others, stigmatisation, impacting negative on treatment, patients losing jobs because of stigmatisation)**.

I: Yes.....Yes

R: So they could be a way of making them work. To help in the counselling of others. **(creating jobs for those with HIV, who are jobless)**.

I: Okay, so it will be like they are a living testimony?

R: Yes..Yes..

I: Okay, Okay I see. No it is fine. Thank you very much sister. We have come to the end of our interview session, and I am sure the information you have given will be of great help, it will help to address the problem of non-adherence as well as strategies to improve adherence.

R: you are very welcome.

I: Ok, maybe I can switch off the voice recorders now. You are free to contact the researcher for anything regarding the research.



DEPARTMENT OF HEALTH

Enquiries: Latif Shamila

Ref:4/2/2

Phashe ML

University of Limpopo
Medunsa

Greetings,

Strategies utilized by professional nurses in the primary health care facilities regarding adherence of patients to ARV, Capricorn District, Limpopo Province, South Africa.

The above matter refers.

1. Permission to conduct the above mentioned study is hereby granted.
2. Kindly be informed that:-
 - Further arrangement should be made with the targeted institutions.
 - In the course of your study there should be no action that disrupts the services.
 - After completion of the study, a copy should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.
 - The above approval is valid for a 3 year period.
 - If the proposal has been amended, a new approval should be sought from the Department of Health.

Your cooperation will be highly appreciated.



Head of Department

15/10/2014

Date



LIMPOPO

PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF HEALTH AND SOCIAL DEVELOPMENT
CAPRICORN DISTRICT

Enq : Malema DMM
Tel : 015 290 9266
From : Primary Health Care
Date : 22 October 2014
To : Phashe ML
: University of Limpopo
Subject : Strategies utilized by professional nurses in the Primary Health Care facilities regarding adherence of patients to ARV, Capricorn District, Limpopo Province, South Africa

The above matter bears reference

1. Permission has been granted to Phashe ML to conduct the above mentioned study.
2. Kindly be informed that :
 - In the course of your research there should be no action that disrupts the services.
 - After completion of the research, a copy should be submitted to the Department to serve as a resource.
 - The researcher should be prepared to assist in the interpretation and implementation of the study recommendation where possible.

Your cooperation will be highly appreciated.

PP. MA Shabalala
.....
Senior Manager PHC

22/10/2014
.....
Date



MEDUNSA RESEARCH & ETHICS COMMITTEE

CLEARANCE CERTIFICATE

MEETING: 05/2014
PROJECT NUMBER: MREC/HS/208/2014: PG

PROJECT:

Title: Strategies utilized by professional nurses in the primary health care facilities regarding adherence of patients to ARV, Capricorn District Limpopo Province, South Africa

Researcher: Mrs ML Phashe
Supervisor: Dr Ramalivhana
Department: Medical Sciences, Public Health & Health Promotion
Degree: MPH

DECISION OF THE COMMITTEE:

MREC approved the project.

DATE: 05 June 2014




PROF GA OGUNBANJO
CHAIRPERSON MREC

The Medunsa Research Ethics Committee (MREC) for Health Research is registered with the US Department of Health and Human Services as an International Organisation (IORG0004319), as an Institutional Review Board (IRB00005122), and functions under a Federal Wide Assurance (FWA00009419)
Expiry date: 11 October 2016

Note:

- i) Should any departure be contemplated from the research procedure as approved, the researcher(s) must re-submit the protocol to the committee.
- ii) The budget for the research will be considered separately from the protocol. PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES.