COGNITIVE APPRAISAL AND ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG ELDERLY PERSONS LIVING WITH HIV: A CASE OF KAKIRI HEALTH CENTRE IV HIV CLINIC

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FEB, 2022

DECLARATION

I Buthamira M. Elisha Braos hereby declare that this information in this research dissertation on **Cognitive Appraisal And Adherence to Antiretroviral Therapy Among Elderly Persons Living With HIV A Case of Kakiri Health Centre** is of my own production and has never been produced by any other author.

Signed ……date ……

APPROVAL

This research dissertation by Buthamira M. Elisha Braos titled **Cognitive Appraisal and Adherence to Antiretroviral Therapy Among Elderly Persons Living with HIV A case of Kakiri healthCentre** has been done under my supervision and his dissertation is now ready for submission to Uganda Martyrs University

Dr. Nalubega Jane Frank
University supervisor
Date…….

DEDICATION

With gratitude to my Father, my mother, my wife, my children, my friend Rwamahe Justus and elderly persons of Kakiri health Centre.

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I am grateful to God for the graces and wellbeing he gave me for the necessary completion of my research dissertation. I wish to express my sincere thanks to my Pastor Bishop Mutwanga Ezakiel for his spiritual, moral, emotional support and the entire community of Kakiri Health Centre mostly administrator Major Ceaser Oyiki for his support and encouragement. I place on record my sincere thanks to Dr Jane Frank Nalubega my supervisor you empowered me with the skills, you called me when I couldn't turn up may God bless the work of your hands, Dr Sr Jane Francis Nantamu for the continuous psychological support and encouragement. I am also grateful to Dr Kiyingi Frank you rely understood my dynamics; Dr Gesa Anthony your research information helped me. I am extremely thankful and indebted for sharing expertise, sincere and valuable guidance and encouragement extended to me. I take this opportunity to express gratitude to all my lecturers; MR. James Nsereko, Dr Sr Jane Francis, Dr Gesa Anthony and Dr Oluka Robert. I thank my course mates you encouraged me mostly Rwamahe Jostus my brother I can't thank you enough, Atwine Pricilla you encouraged me a lot, Joyce, Kabami, Jacinta,fr Vincent, Kasoozi, Kakooza am rely grateful for your support throughout the time it took me to write and complete this report thanks to Kakiri health Centre administration for co-operation and acceptance during the process of collecting data. Last but not the least I thank and appreciate my father, mother, wife and children who imparted values of perseverance, hope and self-love that helped me to do my best and complete this dissertation.

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ABSTRACT

The study was guided by the following objectives: Acceptance and adherence to ARV among elderly persons living with HIV, Family resource and adherence to ARV among elderly persons, Psychological wellbeing and adherence to ARV among elderly persons living with HIV. The study adapted a case study design with both qualitative and quantitative research approaches. Data was gathered from 162 respondents using a self-administered questionnaire.

There was high acceptance and adherence to ARV among elderly persons living with HIV as shown with a mean of 2.524 and standard deviations of 0.9211. Family support and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic was high with a mean of 2.544 and standard deviation of 0.9035. The study found a high psychological that affect adherence to ARV among elderly persons living with HIV with a mean of 2.644 and standard deviation of 0.9103. The study found a significant relationship between cognitive appraisals on adherence to ARV among elderly persons living with HIV with r.= 0.264 and p.=0.001, which implied that there was a positive relationship of cognitive appraisal on adherence to ART among adults in Kakiri ART Clinic.

The researcher recommends: The ART clinics in the country should work out ways to provide guidance and counseling towards acceptance among the victims of HIV in order to promote adherence to ARVS. The government of Uganda through the Ministry of Health should take into consideration the nature of the victims for them to have access to work that can support their income in order to ensure that there is high adherence to ARVS. Clinics in the country providing ART should design targeted interventions to address the determinants of social demographic, psychosocial

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter presents the study on cognitive appraisal and adherence to Ant retro viral Therapy done in Kakiri Health Centre IV HIV Clinic; the study sought to establishing the relationship between cognitive appraisal and adherence to antiretroviral therapy among the elderly persons living with HIV who attend the clinic. The Ministry of Health looking into consideration the nature of the people living with HIV for them to have access to work that can support their income in order to ensure that there is high adherence to ART. The ART clinics in the country work out ways to provide guidance and counseling towards psychological acceptance among the people living with HIV in order to promote adherence to ART. This introductory chapter presents the background of the study, the problem statement, the purpose of the study and its specific objectives, the research questions, the scope of the study and the significance of the study.

1.1 Background to the Study

HIV infection among the elderly population can instigate challenges with cognitive appraisal. This happens when this age group view HIV positive status as a stressful encounter leading to negative reactions that affect adherence to medical regimens (CDC 2016). According to the United Nations Department of Economics and Social Affairs[2019], the elderly are grouped into three groups which include; young elderly, medium elderly and old-old populations. The way the different groups appraise the HIV infection status may not be the same thus the impact on adherence to the ART.

The world health organization 2020, considered age 50 as the starting group and it's mainly from this group that this research intends to focus on. As people live positive with HIV several challenges are faced as a result of being HIV positive which consequently affect cognitive appraisal. The increasing numbers of the HIV positive people caused by epidemic is more evident than ever before, citing more than half of the United States' HIV impacted population above the age of 50 by 2015.

The HIV population is aging as a result of a growing incidence of HIV in both adults and an improved life expectancy from advances in antiretroviral therapy (ART). The HIV medication has changed management of HIV to a chronic disease model of care from a terminal disease model. This care has always required an interdisciplinary approach of using a principle of chronic disease management and geriatric. Adults living with HIV have experienced increased comorbidities in addition to accelerated physical and cognitive aging.

By use of the Centers for Disease Control and Prevention (CDC), the HIV literature bases on the age of 50 to describe the aging HIV positive population. The treatment strategies which have been published to guide providers in the care of adults and HIV infected individuals. The numbers of adult individuals living with HIV/AIDS also continue to increase and proper adherence to antiretroviral therapy within this cohort should be carefully examined.

1.1.1 Historical perspective

Globally, the proportion of older persons (age 60 years and older) in 2017 was 13% of the total population. This proportion is projected to increase to 30% by 2050. Globally, the absolute number of older people increased from 205 million in 1950 to 810 million in 2012 and was anticipated to increase further to 1 billion by 2022 and to 2 billion by 2050 outnumbering children aged 0–14 years. The highest proportion of older persons was projected to live in

developing countries by 2050. In Uganda, the proportion of older persons age 50 years and older was estimated at 7.6% in the 2014 Uganda Population and Housing Census (UBOS, 2014). There had been some growth in the absolute number of older people in Uganda from 1.1 million in 2002 (4.5% of the population) to 1.3 million in 2010 (out of 30 million) and was expected to increase to 5.5 million (constituting 5.7% of the population) by 2050. HIV in old age was an emerging public health challenge and considered as a hidden epidemic globally. In SSA, only 45% of the general populations who are HIV positive know their status. This was far from the UNAIDS ambitious target of ensuring that 90% of those who are HIV positive know their status. With regard to older persons, it is not easy to estimate the prevalence of HIV and the proportion of those who know their HIV status in SSA in general and Uganda in particular. HIV in old age has two major pathways namely; ageing with HIV and infections in old age (Scholten et al., 2011). Ageing with HIV is attributed to adherence to antiretroviral therapy (ART).

Prevalence of HIV among older persons was estimated at 11–13% globally. In sub Saharan Africa, ten countries (mostly in southern and eastern Africa) account for 80% of all people living with HIV. These include: South Africa (25%), Nigeria (13%), Mozambique (6%), Uganda (6%), Tanzania (6%), Zambia (4%), Zimbabwe (6%), Kenya (6%), Malawi (4%) and Ethiopia (3%). Many of the foundations of cognitive appraisals processes that intervene between the encounter and the reaction such as acceptance, relationship with the provider and family resource influence adherence indifferent ways. For instance, negative thoughts, improving adaptive coping skills and poverty influence how older people adhere to ART. Changing one's beliefs about a chronic health condition and its treatment can help increase drive to actively engage in care, and providing specific skills can facilitate greater success in adherence to ARV (Johnson, Dilworth, Taylor and Neilands, 2011).

1.1.2 Contextual Perspective

The studies conducted in10 HIV treatment programs in Burundi, Cameroon and the Democratic Republic of Congo, Newman et al. (2012) found that HIV infected persons ≥ 50 years of age had 1.6 times the odds of being adherent to their HIV medications compared to their younger counterparts (that is, persons 18 to 49 years of age). Kenya is among the countries in sub Sahara Africa with the largest HIV population and the highest HIV prevalence rate.

According to the Kenya AlDS Indicators Survey of 2007, more than 1.4 million of the 36 million Kenyans are living with HIV or acquired immune deficiency syndrome (AIDS; National AlDS Control Council, 2008). Despite the widespread success of ART as a treatment for HIVIAIDS, adherence remains a problem. For patients to achieve maximum durable suppression of the HIV viral load and gain reconstitution of CD4 cells, they must uphold high levels of adherence to the prescribed treatment. Uganda is one country with the largest populations of people living with HIV (PLHIV), with approximately 1.2 million (6.5%) adults aged 15 to 49 years being HIV positive (UNAIDS, 2010).

HIV continues to be one of the primary causes of adult mortality in Uganda (Ministry of Health & ORC Macro, 2005). Strong concerns with respect to HIV prevention, treatment and care still exist despite the progress made over the past 10 years. HIV prevalence among the adults in Uganda was estimated at 7.1% for the age group 50–54, and 5.7% for the age group 55–59, with more men infected than women in the age group 55–59 (Uganda Ministry of Health, ICF International, Centers for Disease Control and Prevention, USAID & WHO Uganda, 2012).

The number of people living with HIV/AIDS who survive into their 50s, 60s and beyond is truly a success story, this pattern will only continue if nations can link HIV-infected persons to adequate care, retain them in treatment and place them on antiretroviral therapy, with the goal of

achieving viral suppression (Brooks, Mermin, 2012; Cahill &Valadéz, 2013). Unfortunately, of the almost 1.2 million people infected with HIV in the U.S., only one fourth achieve viral suppression. Viral suppression was contingent on adhering to ART regimens ≥ 90 percent of the time. This meant that, for many people living with HIV/AIDS, they can skip or miss their HIV medications only once or twice a month.

1.1.3 Conceptual Perspective

The African Union framework on ageing defined older persons as those aged above 60 years and older. In Uganda, during the drafting of the policy for older persons in 2009, the aged 60 years and older was used. In this study, the researcher used the World Health Organization (WHO) recommendations of using age 50 and older as defined for older persons. Subsequently, several studies adopted the age of 50 and elder, as an appropriate definition of old age in sub Saharan Africa (SSA) countries including Kenya; Uganda and South Africa and those of the WHO Study on global ageing and adult health (SAGE) and the INDEPTH network.

Adherence to medication is so critical in the success of HIV management and its comobidities. However being on new regimens may increase the effectiveness despite suboptimal adherence, past work may demonstrate that to the majority of regimens, patients need to adhere to HIV treatment at perfect rates possible in order to counter disease progression, multidrug resistances, and immunologic failures. So many things can make adherence challenging and these include age related co-morbidities, losing the memory, body changes, and adverse effects due to drug toxicity as a result of age related physiological decline in renal and hepatic functions.

While adult patients with a number of medications are considered to be at a high risk of non adherence, some studies have showed that many adults with HIV achieve greater adherence to therapy than their younger counterparts with HIV. This particular population of the adults is

more organized and experienced in daily lives, or possibly are more motivated after they have experienced the initial devastating outcomes of the AIDS epidemic.

However, some studies have concluded that age is not associated with improved adherence rates, and many older individuals demonstrate suboptimal adherence to treatment. As older adults have been found to have reduced survival rates after HIV diagnosis, and non-adherence may increase risk for progression, determining rates of non-adherence is important to understand risk factors and improve successful treatment (CDC 3013, World health organization 2020)

Treatment adherence is critical to the success of HIV disease management. Although newer regimens may be effective despite suboptimal adherence, past work demonstrates that for the majority of regimens, patients must adhere to HIV treatment at nearly perfect rates in order to counter disease progression, multi-drug resistance, and immunologic failure. Adherence can be challenging as a consequence of age-related co-morbidities, memory loss, changes in body composition, and adverse effects and drug toxicity due to age related physiological decline in renal and hepatic functions (journal of personality and social psychology, 1983). While older patients with more medications are considered to be at increased risk of non-adherence, some studies show that older adults with HIV may actually achieve greater adherence to therapy than their younger counterparts. This particular population may be more organized and knowledgeable in their daily lives, or possibly more motivated after experiencing the initial devastating outcomes of the AIDS epidemic.

However, some studies have concluded that age was not associated with improved adherence rates, and many older individuals demonstrated suboptimal adherence to treatment. As adults have been found to have reduced survival rates after HIV diagnosis, and non adherence may increase risk for progression, determining rates of non adherence is important to understand risk

factors and improve successful treatment (Wilson etal; 2013). The purpose of this systematic review was to investigate differences in non adherent to ART between younger and adults. ART was a lifelong commitment that required patients to adhere diligently on a daily medication dosing schedule and made frequent clinical visits for care. Patients who discontinued treatment were at high risk of illness and death because of AIDS related conditions such as tuberculosis. Defaulting diminishes the immunological benefit of ART and increases AIDS related morbidity, mortality and hospitalizations (CDC, 2013). Whereas highly active antiretroviral therapy (HAART) had significantly improved the lives of many HIV patients worldwide, the lack of adherence to the treatment has remained a major challenge to HIV and acquired immune deficiency syndrome (AIDS) care, which was had serious public health consequences. The failure to adhere to HAART often leads to treatment failure and to the likelihood of accelerating the emergence of drug resistant strains of HIV (Cahill &Valadéz, 2013, wison etal; 2010).

Stable adherence to antiretroviral therapy (ART) was the cornerstone of effective HIV treatment. When used correctly, antiretroviral (ARV) medications decrease viral load and improve immune system functioning. Despite the changing demography, little research had examined adherence to ART in HIV infected older adults. Of the relevant studies, many report high rates of adherence (Barclay et al, 2007). Hinkin et al, (2004) reported a mean adherence rate of 87% in persons 50+ years of age and noted that older persons were more likely to adhere than persons < 50 years.

The potential challenges of consistent ART adherence in older adults living HIV were complex and ever changing. Many older persons living with HIV experience chronic health conditions, such as cardiovascular disease, cancer, osteoporosis, hypertension, kidney failure and liver disease, all of which can complicate their HIV treatment and efforts to adhere to ARV regimens (Bhatia, Ryscavage, &Taiwo, 2012; Worm, 2011). Managing multiple comorbid conditions,

including HIV, requires adherence to complex and burdensome pill regimens consisting of HIV specific and non HIV specific medications.

As the HIV epidemic continues to impact the sub Saharan region, care and support for HIV infected/ affected persons was generally problematic and becoming increasingly demanding. Thus, the provision of HIV care services raises unique issues for older people who also provide the bulk of much needed care and support to others (Scholten, & Wright, 2011). The older people were continuing to receive negligible attention with regard to healthcare provision as compared with other population groups, such as children, youths, and people with disabilities (Oloka Onyango, 2008).

Indeed, older persons living with HIV were marginalized at risk group when considering continuing cultural practices such as unprotected sex, polygamy, wife inheritance, trans-generational sex and transactional sex. Therefore, adherence to the ART still remains a big challenge among the older people. It is not clear whether cognitive appraisal affected adherence to ART (antiretroviral therapy) among elderly persons living with HIV in Uganda, which is the concern of the current study.

1.1.4 Theoretical perspective

This study adopted the social-ecological framework pioneered by Bronfenbrenner (1979) as it provides a comprehensive understanding of health-seeking behavior (Joint United Nations Programs on HIV/AIDS, 1999). The premise underpinning this framework is that the elderly health-seeking behavior is located in social, institutional and physical environments, with adherence to the ARV treatment regime consequently largely influenced by the social environment (Roura et al., 2009). The social-ecological model views social factors (i.e., interpersonal relationships with marital partners, family members, church) and structural factors

(i.e., poverty, health systems, livelihood and living circumstances) as inextricably linked and in some ways mutually reinforcing (Duff, Kipp, Wild, Rubaale, &Okech-Ojony, 2010).

Skinner's operant conditioning (behavior modification) affords a crucial complement to the social ecological framework (Donald, Lazarus, & Lolwana, 1997/2010), since adherence to ARVs is strengthened through positive reinforcement (social and emotional support) or weakened through adverse consequences (punishment, rejection, or discrimination) (Simoni, Amico, Pearson, &Malow, 2008). It is against this background that the researcher seeks to investigate the cognitive appraisal and adherence to ARV (antiretroviral therapy) among elderly persons living with HIV a case of Kakiri health centre HIV clinic.

1.2 Statement of the Problem

Elderly persons living with HIV have problems with adherence to ARVs. Cognitive appraisals that involves acceptance, family resource and psychological wellbeing aspects affects adherence among people living with HIV in different ways, despite the available evidence on HIV testing, there is dearth of information on HIV testing among older persons in Uganda (Gage and Ali, 2005). The recent Uganda DHS, 2016 and Population and HIV Impact Surveys (PHIA) omit older persons (UBOS, 2016). Adherence has been cited as a challenge due to the consequences of age related co-morbidities, memory loss, changes in body composition, and adverse effects and drug toxicity due to age related physiological decline in renal and hepatic functions (WHO 2006).

Due to modern technologies and new medical inventions, many people were aging with the HIV infection as the prevalence of older individuals living with HIV continued to increase, adherence to antiretroviral therapy is cited a problem leading to problems in cognitive appraisal of the lived HIV status. Older adults have been found to have reduced survival rates after HIV diagnosis, and

non adherence may increase risk for progression, and development of HIV resistant strains. In addition, several studies on the health of older people in Uganda had focused on later life problems associated with HIV/AIDS (Scholten et al., 2011; Grosskurth, 2009) but not their uptake of HIV adherence.

Since most of the studies had not addressed the issue of cognitive appraisals towards older persons and how this influences adherence to ARV, there was need to address this gap. There was further growing concern about loss to follow up that affects adherence to antiretroviral therapy as among the older people. It was on this that the current study aimed at assessing how cognitive appraisal influences adherence to ART (antiretroviral therapy) among elderly persons living with HIV at Kakiri Health Centre IV HIV Clinic.

1.3 Purpose of the Study

The study aimed at establishing the relationship between cognitive appraisal and adherence to antiretroviral therapy among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV clinic, so as to identify the appropriate measure that would be adopted for adherence of antiretroviral therapy among the elderly persons living with HIV

1.4 Specific Objectives

i. To examine the relationship between acceptance and adherence to ART among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV Clinic

ii. To determine the relationship between family resources and adherence to ART among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV Clinic

iii. To establish the relationship between psychological wellbeing and adherence to ART among the elderly persons living with HIV a case of Kakiri Health IV HIV Clinic

1.5 Research Questions

i. How does ones acceptance affect adherence to ART among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV Clinic.

ii. How does ones family resources affect adherence to ART among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV Clinic?

iii. How does psychological affect adherence to ART among the elderly persons living with HIV a case of Kakiri Health Centre IV HIV Clinic?

1.6 Hypothesis

There is no relationship between cognitive appraisals and the adherence to ART among the elderly persons living with HIV a case of Kakiri health Centre IV HIV clinic.

1.7 Scope of the Study

1.7.1. Geographical scope

The research was conducted in Kakiri Health Centre IV which is found in the central part of Uganda-Kakiri Town Council.

1.7.2 Content Scope

The study intended to examine cognitive appraisal and adherence to ARV among elderly persons living with HIV a case of Kakiri health Centre IV HIV clinic. The independent variable was: a Cognitive appraisal that was measured in terms of acceptance, family resource and psychological wellbeing. The moderating variable was age and sex. The dependent variable was adherence to ARV such as counseling services, ARV drugs and monitoring (CD4, viral load and optimistic infection). The study concentrated on elderly persons living with HIV receiving ARV at the Kakiri health clinic IV.

1.7.3 Time Scope

The study was conducted between the months of March 2020 to October 2020. This period helped the researcher to cover the entire research objectives.

1.8 Justification of the study

Antiretroviral can increase the length and quality of life and productivity of patients. Strict adherence to HAART regimens is crucial in order to maintain a low viral load and prevent the development of drug resistant virus. However, some clients do not return for follow up on schedule and are likely to be non-adherent to prescribed HAART regimens. There is growing concern about loss to follow-up and non-adherence to antiretroviral therapy as significant barriers to care in Uganda more so among older persons. The elderly people are becoming much victims of HIV and there is need to promote adherence as a means of suppressing the virus.

Religious beliefs and practices are limiting people from complying to adherence of ARV. Psychological appraisal limits the elderly people living with HIV from adhering to ARV due to many different reasons.

1.9 Significance of the study

The findings of this study might have significant clinical benefits for people living with HIV. Identification of psychosocial wellbeing correlates to adherence and the aid in designing interventions aimed at enhancing adherence to ART.

The findings also might play an important role in advancing appraisal of coping with self efficacy and social support theories. Taking of HAART regimens is not a simple task since it is a lifetime treatment.

It is expected that the findings from this study might make several contributions to both knowledge and understanding of what is one of the worst calamities to hit Uganda and the world in many years.

The study findings may also contribute to the Sociological /Anthropological understanding of non adherence and be useful in developing interventions that will take into consideration the problems faced by people taking ARV treatment at Kakiri Health Centre IV and Uganda as a whole.

It is expected that the qualitative and quantitative data collected in this study will be made available to health planners such as Ministry of Health and it is hoped that this will lead to better designed, better directed and more culturally sensitive intervention programs to deal with cognitive appraisals associated with non-adherence.

In addition findings will assist the Ministry of Health in efforts to develop a scheme for rational use of ARVs, and also serve as a resource for research teams developing new protocols.

1.10 Theoretical Framework

This study adopted the social-ecological framework pioneered by Bronfenbrenner (1979) as it provides a comprehensive understanding of health-seeking behavior (Joint United Nations Programs on HIV/AIDS, 1999). The premise underpinning this framework is that the elderly health-seeking behavior is located in social, institutional and physical environments, with adherence to the ARV treatment regime consequently largely influenced by the social environment (Roura et al., 2009). The social-ecological model views social factors (i.e., interpersonal relationships with marital partners, family members, church) and structural factors (i.e., poverty, health systems, livelihood and living circumstances) as inextricably linked and in

some ways mutually reinforcing (Duff, Kipp, Wild, Rubaale, &Okech-Ojony, 2010). Skinner's operant conditioning (behavior modification) affords a crucial complement to the social ecological framework (Donald, Lazarus, & Lolwana, 1997/2010), since adherence to ARVs is strengthened through positive reinforcement (social and emotional support) or weakened through adverse consequences (punishment, rejection, or discrimination) (Simoni, Amico, Pearson, &Malow, 2008). It is against this background that the researcher seeks to investigate the cognitive appraisal and adherence to ARV (antiretroviral therapy) among elderly persons living with HIV a case of Kakiri health centre IV HIV clinic.

Conceptual Framework

A model of medication adherence within the context of HIV disease is shown in Figure 1. The model demonstrates the link between antecedent factors that is cognitive appraisal variables and moderating variables as age and gender influence the ART adherence. The analysis reported here is an attempt to increase understanding of the relationships among Cognitive appraisals that was measured in terms of acceptance, family resource and psychological wellbeing on ART adherence among elderly persons living with HIV as a means of identifying potential points of intervention that supported ART adherence.

Figure 1: Conceptual Framework of Variables

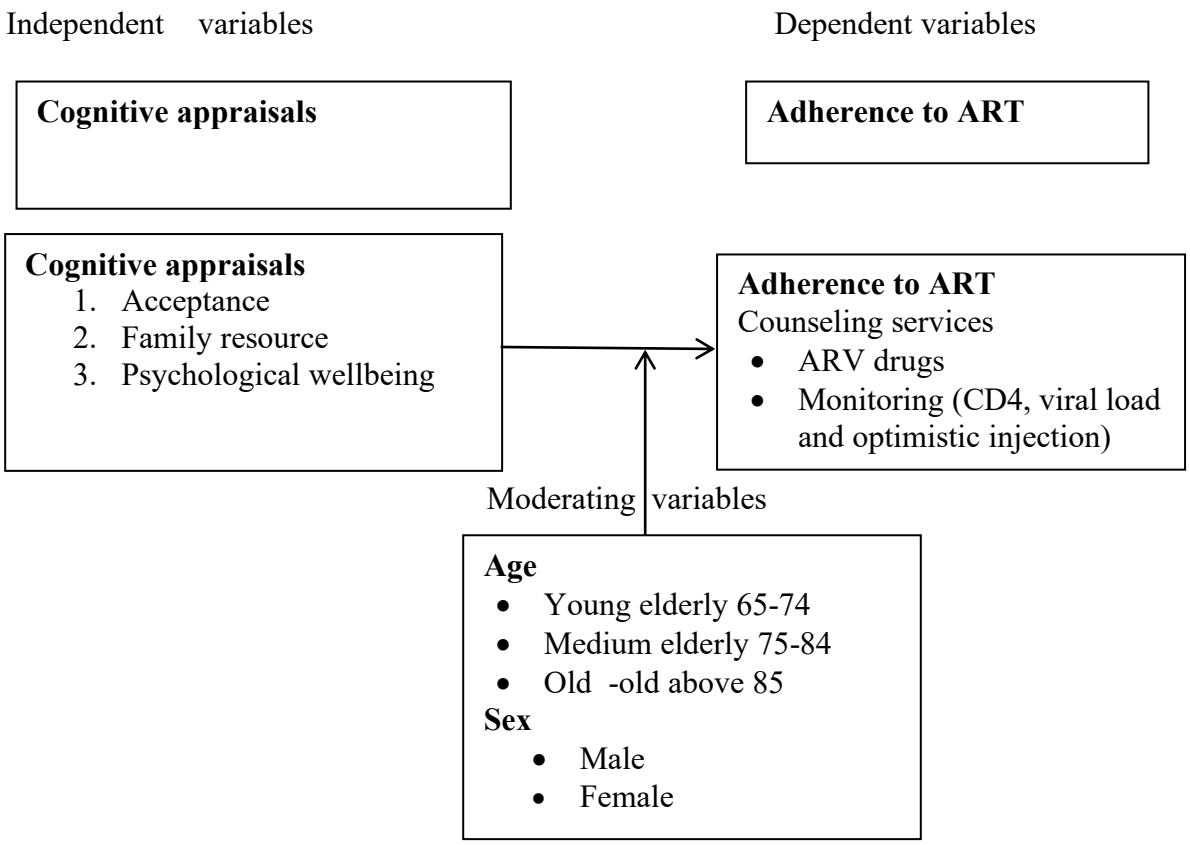

Figure 1.1 Conceptual Framework for cognitive appraisals affecting adherence to ART

From the above conceptual framework, the independent variable (**cognitive appraisals**) is conceptualized as acceptance, family resource, and psychological wellbeing. The dependent variable (**adherence to ART**) is conceptualized as ARV drugs, Monitoring (CD4, viral load and optimistic injection). From the framework, it is presumed that poor cognitive appraisals lead to poor adherence to ARV. This can affect the dependent variable which is adherence to ARV indicated by victims failing to attain the intended health level. But there are some intervening variables like the age (young elderly 65-74, medium elderly 75-84, Old above 85) and sex (male and female).

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter presents literature review on cognitive appraisal and adherence to ART among elderly persons living with HIV. Under subheadings of: cognitive appraisals and adherence to ART among elderly person living with HIV.

2.2 Literature survey

Since 1996, an overwhelming amount of evidence from clinical trials has been published validating the use of HAART for the treatment of human immunodeficiency virus (HIV) infection. Suppression of HIV replication, immune reconstitution, a halt in disease progression, increased survival; reduced morbidity and a better quality of life have been defined as the biological and clinical goals of treatment. Maximum and durable suppression of HIV viral replication to below the level of detection is necessary to achieve these biological and clinical goals. To achieve success requires near-perfect adherence to combination regimens. Failure to suppress viral replication completely inevitably leads to the selection of drug resistant variants limiting the effectiveness of therapy (Volberding & Deeks, 2010).

Non-adherence in patients on anti HIV therapy is the strongest predictor of failure to achieve viral suppression below the level of detection, and faulty adherence to anti-HIV drugs most often underlies treatment failure. It would appear that > 95% percent adherence may be necessary to adequately suppress viral replication, produce a durable response and halt disease progression (UNAIDS, 2010). This means that missing more than one dose of a regimen per week may be enough to cause treatment failure.

Decisions to adhere or not adhere to ART depend not only on patient medical characteristics, but also on psychosocial factors, including cognitive appraisals, coping, mental health, quality of life

(QOL), individual beliefs about ART, complementary/alternative medicine and spirituality (Lyimo et al. 2014). Coping, mental health (*i.e.,* depression) and social support are among the most commonly cited psychosocial predictors of ART adherence in PLWH (Finocchario-Kessler et al. 2011).

A classic review of HIV medication adherence studies (Fogarty et al. 2002) found that: (1) social and psychological factors reflecting emotional adjustment to HIV/AIDS were related to better adherence; (2) gender was not consistently related to adherence, no evidence of effects from CD4 count or HIV viral load; and (3) younger age, minority status and a history of substance abuse were often related to non-adherence (mixed effects for race/ethnicity and age).

In one study of 100 PLWH (Bader et al. 2006), poorer QOL and poorer physical functioning were associated with ART discontinuation and working and maintaining a regular daily routine were associated with better adherence. In a study of 158 PLWH (Lyimo et al. 2014), adherence was primarily predicted by negative rather than positive coping mechanisms.

There is a critical need to maximize HIV treatment adherence in efforts to optimize HIV primary and secondary prevention. Timely initiation of pharmacologic treatment and high levels of adherence to antiretroviral therapy (ART) can substantially reduce viral load on both an individual and a community level (Volberding et al., 2012). For primary prevention (averting new infections), a reduction in both individual and community viral load can reduce the likelihood of HIV transmission following exposure (Cohen et al., 2011). From a secondary prevention standpoint (mitigating the negative outcomes for those who have been diagnosed with a condition or disease), reducing viral load early in the course of HIV disease has been documented to have a positive impact on reducing morbidity and mortality over time among HIV-infected persons (AID Sinfo, 2012; Volberding & Deeks, 2010). For antiretroviral

medications to be most effective at achieving these goals, they must be taken consistently, as poor adherence is linked to lower survival, higher morbidity, viral resistance, greater health care costs, and diminished quality of life (Gardner, Mclees, Steiner, Del Rio and Burman, 2011; McNeil, 2011; Volberding, et al., 2012; Volberding & Deeks, 2020). However, adherence to ART is difficult due to factors such as the complexity of the regimens, side effects, HIV-related stigma, and competing priorities.

2.2.1Cognitive Appraisals and Adherence to ART

Cognitive appraisal is central to understanding the transaction between a potential stressful encounter and the reaction as exhibited by human behavior (Lazarus & Folkman, 1984). Lazarus and Folkman defined cognitive appraisal as the processes that intervene between the encounter and the reaction (p. 52). They identified three types of cognitive appraisal: (a) primary appraisal, (b) secondary appraisals, and (c) reappraisal. Lazarus and Folkman theorized that, although these three forms of cognitive appraisal should be considered separately, they often occur simultaneously because they are related. In the primary appraisal, an individual judges the significance of an event to his or her well-being. Individuals might judge events as causing harm, as being threatening, or as being challenging.

Lazarus and Folkman (1984) explained that people under comparable conditions can react differently to the same event. One person might judge a situation as minimally stressful, whereas another person might judge it as extremely stressful. The appraisal of stress is a function of both the external condition and the manner in which a person construes the stressor. Accounting for differences in responses to similar external events among people living in the same environment is probably the key to understanding differences in coping and adherence among people living with HIV.

In secondary appraisal, an individual evaluates his or her ability to do something about the already suffered harm, threat, and challenge. An understanding of secondary cognitive appraisal might help in the attempt to account for stressor response variability among people under comparable conditions. The question he or she strives to answer is what can I do? given the cognitive appraisal of a situation as harmful, threatening, or challenging. At this level, an individual evaluates the coping options to determine whether a given coping option will accomplish what it is supposed to accomplish (Lazarus & Folkman, 1984). Some of the questions that people ask themselves in secondary appraisal include can I apply a given strategy effectively? or What would be the consequences of using a particular strategy in the context of other internal and external demands and constraints? Whether people can perform specific tasks depends upon (a) their confidence in themselves and (b) their perception of the available support from their social network. Details about types of support and how they may or may not be useful in understanding coping are discussed under the section addressing social support. Third, reappraisal refers to a changed appraisal based on new information from an environment. For example, a person living with HIV may change his or her appraisal of HIV as threatening following an improvement in health, number of CD4 and a significant drop in viral load; suppressed viral load or not detectable viral load.

2.2.2. Acceptance and Adherence to ART

So many interview based studies that are aimed at exploring patients' reasons for refusing HAART identified the potential importance of patients' beliefs about antiretroviral treatment. Patients reported on the many negative perceptions about taking HAART, and these included fearing of the drug side effects, other concerns that included the need for strict adherence, work inconveniences and practical problems associated with the regimen itself, distrust of

conventional medicines, fearing the long term damage to their body organs, and what they called the perception of starting medication in the absence of any symptoms.

Similar beliefs have always emerged in other studies of adherence, where by non adherence is always linked to the doubts on the efficacy of the treatment, the side effects concerns and long term toxicities, demanding schedules and personal capacities to adhere, the impact of HAART on self identity, and the possibility that being on treatment leads to clear disclosure of the individual's HIV status. One of the reasons why previous interventions in facilitating adherence have been met with only limited success is due to the fail of utilizing theory based approaches to identify and address the main perceptual barriers like the beliefs and attitudes (Lipincott & Wilkins, 2007).

Some of the patients have had the perception that ART disrupts their daily routine or having a chaotic schedule, finding showed that HAART too is inconvenient or difficult to incorporate and brings difficulties in coordinating adherence with work, in families or taking care of the responsibilities at home. The difficulties in balancing the numerous strict dietary requirements associated with HAART include sleeping through a dose, the forgetfulness which causes someone to miss the dose is mentioned as a challenge not only by those faced with non adherent participants but even with those recorded at the facility of having adherence levels of or even above 95% (Mills *et al.,* 2006).

Some clients who have proved to be more knowledgeable about HIV, the importance of maintaining the recommended adherence levels always tend to follow all the instructions that regard medication intake as compared to the clients with no such information. In addition to that, some negative beliefs regarding efficacy of HAART may also influence ART adherence behaviors as a result of non adherence (Paterson, 2010). Poor adherence levels have also been

associated with patients desire to avoid embarrassment as a side effect (like sweating) in certain situations such as on a date or at a job interview (Lyimo et al. 2014).

2.2.3 Family resources and Adherence to ART

Different studies done at different places have suggested a multiple patient factors responsible that might affect age related adherence. Barclay et al, (2007) and Klee Berger et al, (2001) found out that non adherence in younger HIV individuals is to be associated with financial dependence on others for example in family and government programs, while non adherence among old individuals was associated with an increased annual income greater than $10,000. Financial dependence is among the predictors for adherence among the younger individuals, creating a positive relationship between income and adherence, as finances and income relate to the ability of purchasing medications.

Moreover, some of the recent articles reviewing medical care for the youth with HIV/AIDS found out that the leading reasons for non adherence among the youth were lack of insurance in addition to social and psychological factors. The other factors of adherence among the youth included inconsistent daily routines, the fear of disclosure, forgetfulness, adverse effects of the medication, and lack of understanding the need to take medication when one feels better (Dowshen & D'Angelo, 2011). The surveyed studies were based on youth and not the elderly who are the concern for the current study.

According to Sophia, Carlos (2014) who pointed out that people living with HIV (PLHIV) in Ethiopia and other developing countries had faced numerous challenges to their health and wellbeing, these included: poverty, limited healthcare infrastructures and high levels of societal stigma. Irrespective of these challenges, resilient trajectories have been observed even within such resource limited set ups. In Ethiopia, such resilience is exemplified by the Expert Patients

(EPTs), HIV positive laid health workers who function as adherence counselors, as health educators, outreach workers and community advocators.

In the study they conducted a multi method qualitative study with 20 EPTs in Addis Ababa, Ethiopia in order to understand pathways to resilience in this selected population. Participants in this study described three key mechanisms of resilient coping: that is, the use of spirituality and faith based practices to manage psychological difficulties associated with living with HIV, utilization of social capital from families and community networks as a buffer against the psychological and economic consequences of societal stigma and serving other people as a mechanism for finding optimism and purpose in life. These interventions are designed to facilitate and/or augment these social processes in the wider community may be promising strategies for improving health among PLHIV in Ethiopia and other resource limited settings.

When resources are constrained in settings such as sub Saharan Africa, household poverty and orphan hood have also emerged as some of the most important predictors of adherence to ART among HIV infected people. Lack of food staffs and money for transport to the clinic to refill their prescriptions have been associated with non adherence to ART (Biadgilign et al., 2009; Pearce, et al., 2008). For example, in a study of 96 HIV infected children in Zambia, Haberer et al (2011) found that the number of missed ART days increased by 8% per 100,000 kwacha ($20) income (Haberer et al., 2011).

There was evidence in the pioneering studies on adherence in resource poor management to suggest that medication related costs were one of the main barriers to ART adherence. For instance, a Meta analysis of 10 studies conducted in poor countries by (Haberer et al., 2011) found that the cost of treatment was a major obstacle to treatment. Even when the drugs are

given for free, more general financial constraints may force people to sell off their drugs to earn some money for the family use.

The relationship between food staffs and medications extend even further beyond the income argument. Some classes of antiretroviral drugs such as Saquinvair and Nelfinavir actually cause adverse side effects when taken without eating food at the right time, such as nausea, vomiting, and stomach pain. On the other hand, other classes of drugs such as Didanosine and Indinavir cause side effects when taken with or after eating food, such as increased appetite. For patients living in poverty lines, reducing these negative side effects naturally requires priorities in the context of scarce food and income. In this case, non adherence seems more convenient and advantageous to those patients (Biadgilign et al., 2009).

In a study of HIV, men and women (Kremer et al. 2009) believing that health was controlled by God or a higher power were 4.75 times more likely to refuse ART compared to those not sharing this belief. On the contrary, those who believed that spirituality helped them cope with the side effects of medication reported better adherence (Kremer et al. 2009). In a longitudinal study of 350 HIV-infected adults (Vyas et al. 2014), higher annual household income ($p = 0.004$) and religious affiliation ($p = 0.031$) were predictive of greater medication adherence. Participants who said that their beliefs gave meaning to their lives, made them feel they had a connection with a higher being, were influential during their recovery, and helped them feel connected to humanity were more likely to be ≥90% adherent ($p < 0.015$). Conversely, participants who believed God created all things in the universe; that God will not turn his back on them; and those who regularly attended religious services, participated in religious rituals, and prayed and meditated to get in touch with God were less likely to be ≥90% adherent ($p = 0.025$).

Malnutrition as a result of lack food impairs metabolic functioning of the body, which includes absorption, storage, and utilization of nutrients which further compromises the immune system. Food insufficiency in most of the developed countries has the same adverse impacts observed in developing countries. For example, a study conducted in San Francisco showed that one in three marginally housed people living with HIV/AIDS were severely faced with food insecure. Furthermore, those people who were faced with food insecurity demonstrated having lower T-cell (CD4) counts, poor medication adherence, and incompletion in the suppression of HIV replication compared to other individuals who had adequate food (Dowshen & D'Angelo, 2011). The surveyed studied were done in different geographical settings than that of Uganda. Similarly the findings present contradictions on family resources influence on adherence to ART. Therefore, this is needed to justify these contradictions.

2.2.4 Psychological wellbeing And Adherence to ART

Some of the physical stressors may lead to psychological distress, depression, and other mental related problems and all these interfere with behaviors of adherence to ART. Research presented at a recent World Federation for Mental Health Expert Forum in South Africa (January 29-31, 2008) demonstrated that there is need for mental health services for people living with HIV in Africa. Eighty to five percent of pregnant women living with HIV in Zambia had had some episodes of major depressive disorder and suicidal thoughts.

In addition, 58% of HIV positive people had been diagnosed of mental health problems (35% major depressive disorder, 6% bipolar disorders, 37% panic disorders, 15% social phobia, and 21 % generalized anxiety disorder). In summary, psychological distress impedes people living with HIV from organizing and executing important actions influencing adherence to ART. Not all social environments discourage patients' adherence to ART. Some social contexts are supportive

in nature to improve the psychological wellbeing states in people living with HIV. To create an understanding on how social support reinforces adherence to ART, Gonzalez et al. (2004) investigated the influences of social support on HIV medications compliance in 90 homosexual men living with HIV.

The study demonstrated that social support influenced patients' adherence to ART through positive states of mind, which are necessary to understand the efficacy of ART and boost patients' confidence in adhering to the treatment. Chesney et al. (2000) studied a convenience sample of 75 patients living with HIV enrolled in clinical trials on adherence to ART. The study showed a strong relation between efficacy of treatment, self-confidence, and adherence to ART. Higher scores on perception of self-confidence related to higher scores on adherence to ART. Similarly, no adherence to ART correlated with individuals' perceptions that they were less confident in their ability to take their medications as directed. Researchers have postulated that social support has preventive and therapeutic effects in a variety of diseases and conditions (Bottari, Robert, Ciesla, & Hewitt, 2005; Gonzalez et al., 2004; lgreja et al., 2000).

Mounting evidence suggests that social support may influence adherence to HIV treatment (Gonzalez et al., 2004). In addition, social support may enhance mental resources and strategies, which in turn may influence healthful behavior, such as an individual's ability to adhere to the complex prescription regimen required in HIV treatment. Prior to exploring the nature of HIV treatment, it is important to explain HIV and how it affects an individual living with this virus socially and psychologically. People living in supportive social contexts can have more healthful behavior (Gonzalez et al., 2004) than those who are not. Social resources may influence a patient's level of adherence to ART. Individuals who receive or perceive social support from a social network typically believe that they can manage difficult tasks better than those who do not

have similar resources. Catz et al. (2000) found that patients who perceived less emotional support were less confident in their ability to adhere to ART. Thus, in theory, social support may be associated to better adherence to ART.

Psychological distress may impact adherence to ART through various mechanisms. Psychological distress is closely associated with feelings of helplessness and loss of self-esteem due to perceived inability to cope with situations that demand effective response; these may impair self care behaviors among distressed persons. Additionally, the behavioral changes e.g. substance and drug abuse that may occur as adaptations or coping responses to psychological distress may impact adherence to ART. Psychological distress may cause disruptions in the neuroendocrine system, resulting in marked changes in health-related behaviors (e.g. alcohol and substance abuse) or other failures in self-care (Kagee & Delport, 2010).

Beyond these direct pathways, psychological distress may cause changes in the immune system, thereby reducing the efficacy of ART mediated immune responses; this may result in increased disease progression and risk for mortality (Cohen et al., 2007; Leserman, 2008). Disease progression and morbidity may also create barriers to ART adherence, particularly if they reduce ART optimism. Further, psychological distress or its related feelings of helplessness and loss of self-esteem may compromise an adolescent's ability to mobilize psychosocial resources, which prevent or attenuate appraisal of an event or stimuli as stressful. For example, social support from significant others can provide the necessary resources to cope with a stressful event and/or bolster an adolescent's ability to cope with the demands imposed by the stressful event and medication regimen.

In some of the past studies have identified psychosocial factors to be determinants on adherence, yet it was unclear whether these factors were specific to either the younger or older individuals

with HIV. In trying to evaluate the psychosocial models to improve adherence among HIV positive adults, Johnson et al. (2009) found out that negative effect to be the mediator among maladaptive coping, social support, and adherence. Factors of adherence, included affect and attitude to HIV and ART, differ among the adults newly infected with HIV and those affected by HIV in years preceding a wide availability, effective therapy.

Psychological wellbeing has long been linked with health and wellbeing and may be a central issue for patients at the end of life or those dealing with a chronic illness such as Human Immune Deficiency Virus and Acquired Immunodeficiency Syndrome (HIV/AIDS) (Tumwine, Neema& Wagner, 2012; Ironson, Kremer, and Ironson , 2006). Illness disrupts the relationship inside the human organism, as well as disrupts the families and workplaces, destabilizes preexisting patterns of coping, and raises questions about the Sacred (Puchalski, Ferrell, Virani, Otis-Green and Baird, 2009). According to the bio psychosocial-spiritual model of care, everyone has a spiritual history (Puchalski, Ferrell, Virani, Otis-Green, Baird, 2009). For many, this history may unfold within the context of a religious tradition; and for others as a set of philosophical principles or significant experiences. Moreover, when illness strikes, it affects the person in totality (biologic, psychological, social, and spiritual aspects).

Cohen, and Miller (2007) describe psychological stress as an outcome of an appraisal process that occurs when an individual perceives that environmental demands tax or exceed his or her adaptive capacity (Cohen, & Miller, 2007). According to Cohen et al (2007), this definition does not include psychiatric disorders that may arise as downstream consequences of stressful exposures (Cohen et al., 2007). However, psychological stress is distinct from stress. Past studies generally describe psychological distress as consisting of depression, anxiety and somatic symptom and social dysfunction (Derogatis & Fitzpatrick, 2004). Other studies have expanded

on these domains. For example, in a study conducted among French Quebecois people in Canada, Masseé (2000) identified six idioms of distress – demoralization and pessimism towards the future, anguish and stress, self-depreciation, social withdrawal and isolation, somatization and withdrawal onto oneself.

In some of the past studies had explored the ways that religion intersects with ARV medication experiences. Data demonstrated that PLWHA perceive ART was having its origin from God. Congolese PLWHA believed in the fact that God provided the knowledge to make ARVs. Nigerian PLWHA viewed ARV medications effective to be dependents on Allah's dispositions (Musumari, 2013). Islamic perspective dictated that Allah influenced the discovery, emergence, and provision of ARVs. Islamic faith also encourages PLWHA to seek treatment, since all servants of Allah must seek treatment for diseases (Balogun, 2010).

Religious beliefs can create distress and increase the burden of illness, as well (Tumwine, Neema& Wagner, 2012; Vyas, Limneos, Qin, Mathews, 2014). Research indicates that people reflect on their spirituality after being diagnosed with HIV/AIDS by incorporating their understanding of God and previous religious and spiritual experiences as part of their coping repertoire (Utley and Wachholtz, 2011). Therefore, patients with HIV/AIDS use religion as a coping strategy and to bring a sense of meaning and purpose to their lives in the face of a challenging illness (Cotton, Puchalski, Sherman, Mrus, Peterman, 2006). Several studies elsewhere have demonstrated the benefits of various aspects of religion on mental and physical health outcomes in patients with chronic disease conditions.

2.5 Adherence to Antiretroviral Therapy

Anti retroviral therapy is a life-long treatment (Gill, Hammer, Simon, Thea, & Sabin, 2005), and reaping the benefits of ART requires strict adherence to the medication regimen (World Health

Organization, 2010). Adherence is broadly defined as the extent to which a patient's health behaviors correspond with medical advice or recommendations (World Health Organization, 2003). There have not been any standard criteria used for adherence to ART as each ART drug regimen had a unique adherence resistance relationship (Bangsberg, Deeks, 2004). Earlier drug regimens had required levels for adherence greater than 95%, but classes included the protease inhibitor (PI) boosted regimens and non nucleoside reverse transcriptase inhibitors (NNRTI) may achieve full virologic suppression at adherence levels lower than 70% (Bangsberg, 2006, & Kempf, 2005).

A critical first step to improving adherence among older adults in Africa and thus helping to achieve the 90 targets is to understand current levels of treatment adherence. Currently there is no synthesis in the literature on the comparison of adherence rates for ART between older and younger adults living in Africa.

Non adherence to medical regimen has remained a challenge to the medical profession as well as to social sciences. Despite of many studies about non-adherence in the past few decades, it has almost remained unchanged (Kardas, Lewek and Mat, 2013). In order to better understand the reasons behind this and to achieve positive results, studies such as Lehane & McCarthy (2007) and Heydari, Ahrari and Vaghee (2011) have looked at the factors negatively impacting patient adherence to medical regimens (i.e., diet, drug and exercise regimen). It is well established that many patients either intentionally or local had failed to adhere to their prescribed treatments, and understand the contributing factors to patients' adherence to their therapeutic regimen was essential for achieving positive results. Identifying these determinants enhance nursing performance and improved patient adherence to the prescribed health regimen. Among the more

important psychological factors was cognitive appraisal, a psychological process that impacted on an individual's confrontation and guidance his/her adaptive behaviors (Thomas, 2007).

In their theory driven research, Gonzalez et al. (2004) highlighted the roles of depression and positive states of mind as mediators of the association between social support and adherence. Weaver et al. (2011) examined a stress and coping model of adherence and emphasized the importance of social support, negative effect, and avoidant coping. Simoni et al. (2006) reported that negative affect and spirituality mediated social support's impact on self-efficacy which, in turn, influenced adherence. While these theory-driven studies converge on the importance of constructs such as social support, negative effect, and coping in modeling adherence, it is unclear if these models (evaluated using samples comprised largely of younger HIV-positive persons) generalize to HIV-infected older adults.

Several measures have been developed to monitor adherence to ART across diverse populations including, self reports of adherence, electronic monitors, un- announced pill counts, provider assessments, pharmacy refills, and biological indicators such as CD4 cell counts and HIV-RNA (viral) load (Giordano, Guzman, Clark, Charlebois, &Bangsberg, 2004; Oyugi et al., 2004). There is no perfect measure of adherence, as each measure has several limitations- including cost (electronic monitoring devices), and accuracy of estimates (pharmacy refills, pill counts, physician assessments, and self-reports) (Simoni et al., 2006). Self-reported adherence is the most frequently used measure in clinical practice and research, especially in resource-limited settings such as Uganda (Giordano et al., 2004).

Additionally, there is no standard cut-off for adherence on measures such as pill counts. For example, a review on gender effects in treatment adherence found that adherence cut- offs vary widely across studies, ranging from 80% – 100% (Puskas et al., 2011). Majority of the ART

regimens in Uganda and most of sub-Saharan Africa are largely based on nucleoside reverse transcriptase inhibitors (NRTI) (Ministry of Health-Uganda, 2008), which are susceptible to resistance at levels of adherence less than 95% (Bangsberg, 2006).

In Uganda, the reported rates of adherence vary across studies, and range from 72% to 100%. In a study exploring adherence among HIV infected children and adolescents in Uganda, Musoke (2007) found adherence levels ranging between 72% with home-based unannounced pill counts and 94.1% with a self report measure; both rates below the required minimum (95%) for successful ART outcomes. A small study assessing the feasibility of electronic adherence monitoring at the Joint Clinical Research Center in Uganda found that adherence varied with the type of assessment method used 99% of self-reports, 97% for pill counts, and 88% with electronic medication vials (Wiens et al., 2012).

Similarly, in a longitudinal study exploring adherence in HIV infected parents and their children initiating ART in a family treatment program in Kampala, Byakika, Tusiime et al (2009) found that rates of adherence declined with increased duration of ART, and also varied with type of assessment: 98.1%, 97.8% and 100% by 3 day self report, 30 day visual analogue scale and pill counts, respectively. All the studies show lack of ARV adherence among the respondents. In this case, suboptimal or non-adherence to ART may significantly reduce the health benefits of ART treatment in HIV patients. These drug-resistant strains decrease treatment efficacy and, as a result, require treatment using another line of antiretroviral drugs. Such alternative treatments are difficult to obtain and often are more costly. Moreover, these resistant strains are still transmissible, further magnifying the problem.

Adherence to ART is a pre-requisite to ensure the virological success in HIV patients. However, the lack of consensus that has existed over the last 4 decades on the concept of adherence to

medications and also different methods of analyzing this concept in clinical trials prevented a practical quantification of this concept or effective correction methods.

2.6 Cognitive Appraisal and Adherence to ARV

Massy, Musiime, (2016) carried out a study on psychological distress that was common among adolescents living with HIV (ALHIV) worldwide, and had been associated with non adherence to anti retroviral therapy (ART), leading to poor virologic suppression, drugs resistance, and increased risk for AIDS morbidity and mortality. However, only a few studies have been explored in the relationship between psychological distress and ART adherence among adolescents in sub Saharan Africa.

The study which was conducted on a cross sectional survey of 464 ALHIV (aged 12–19; 53% female) seeked HIV care at a large HIV treatment center in Kampala, Uganda. ALHIV were recruited during routine clinical visits. Three self reported binary adherence measures were utilized which included missed pills in the past three days, non adherence to the prescribed medical regimen, and self rated adherence assessed using a visual analog scale. Psychological distress was measured at a continuous variable, and computed at the mean score on a locally developed and validated 25 item symptoms checklist for Ugandan ALHIV. Psychosocial resources included spirituality, religiosity, optimism, social support, and coping strategies. Psychosocial resources were associated with lower odds for non adherence on all three self report measures.

The study recommended that there was a need to strengthen the psychosocial aspects of adolescent HIV care by developing interventions for identifying and preventing psychological distress among Ugandan ALHIV. However, the study was based on the youths and not elderly which was the concern of the current study. Therefore, the study examines the relationship

between psychological and ART adherence, and effect of psychosocial resources on ART adherence among elderly persons.

Lazarus and Folkman (1991) define coping as a dynamic process that entails deployment of cognitive and behavioral efforts to manage specific external and or internal demands that have been appraised as stressful. Persons living with chronic illnesses are likely to use a variety of coping strategies in dealing with different aspects of a stressful situation. The type and complexity of coping strategies utilized varies with the adolescent's age (Snethen, &Warady, 2004) and gender. For example, older adolescents are more likely to use emotion management and cognitive coping strategies such as cognitive restructuring, while younger adolescents, incapable of abstract thinking, are more likely to use emotion-focused strategies such as venting or avoidance and problem-solving coping strategies (Snethen et al., 2004).

In Uganda, the prevalence of non adherence to antiretroviral therapy (ART) by HIV/AIDS patients remains high and sometimes this is blamed on patients' religious behavior. A descriptive design was used to examine the relationship between religiosity and ART adherence in a sample of 220 patients attending a HIV/AIDS clinic in a Ugandan public hospital. Participants who self-identified as Pentecostal and Muslim had the highest percentage of members with high religiosity scores and ART adherence. Among Muslim participants (34), 82% reported high religiosity scores and high levels of ART adherence. Of the fifty Pentecostals participants, 96% reported high religiosity scores and 80% reported high levels of ART adherence. Correlation analysis showed a significant relationship between ART adherence and religiosity ($r = 0.618$, $P \leq 0.01$). Therefore, collaboration between religious leaders and HIV/AIDS healthcare providers should be encouraged as one of the strategies for enhancing ART adherence (Kisenyi, Muliira, and Ayebare, 2013).

2.7 Summary and research gap

In summary, having sought and presented the detailed review of literature on cognitive appraisal and adherence to ART, the following are necessary as well as the identified research gaps.

2.7.1. Theoretical gap

Most of the previous studies used theoretical triangulation in doing their researches. Therefore, the researcher found it of value to use one theory, that is, which offers deeper understanding of the subjects under study and offers more clarity as far as the relationship between cognitive appraisal and adherence to ART is concerned.

2.7.2. Knowledge gap

Some of the reviewed studies on cognitive appraisal and adherence to ART looked at the holistic age differences. For example, older adolescents are more likely to use emotion management and cognitive coping strategies such as cognitive restructuring, while younger adolescents, incapable of abstract thinking, are more likely to use emotion-focused strategies such as venting or avoidance and problem-solving coping strategies (Snethen et al., 2004). However this study has taken a step ahead to consider the relationship of the elderly people.

2.7.3. Content gap

Most of the previous studies on cognitive appraisal and adherence to ART, For example, older adolescents are more likely to use emotion management and cognitive coping strategies such as cognitive restructuring, while younger adolescents, incapable of abstract thinking, are more likely to use emotion-focused strategies such as venting or avoidance and problem-solving coping strategies (Snethen et al., 2004). However this study looked at the remaining age group of elderly which Snethen did not consider.

2.5.4. Methodological gap

The reviewed studies on cognitive appraisal and adherence to ART (Snethen et al., 2004) employed only quantitative research approach. The current study however attempted to triangulate and used both quantitative and qualitative research approach in order to ensure quality of findings

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter covers methodology that was used in carrying this study. The methods are the research design, study area, study population, sample size and selection, sampling techniques, data collection instruments, validity and reliability, data collection procedure and data analysis.

3.1 Study Design

The study adapted a case study design with both qualitative and quantitative research approaches. It was a case study because, through self-reporting, a survey facilitates research when one is dealing with sensitive or controversial topics, accuracy in measurements is enhanced by qualification, replication and control over observer effect, case study results would generalize to a larger population within known limits of error. It allowed an in depth analysis of the situation (Curtis, Comiskey& Dempsey, 2015). It used data from the respondents once at a time from a given unit only in the hospital. The case study design was used because it provides information on cognitive appraisals on ARV adherence among elderly persons. A case study allows the use of different methods in data analysis such as inferential and descriptive statistics to make conclusions. The study was based on both quantitative and qualitative methods with the dominant approach being quantitative one. Statistical inferences were made by the use of Quantitative data by relating the independent and dependent variables. Qualitative data was used to supplement the quantitative data with detailed information in form of statements from interviews for in depth analysis.

3.2 Locale of the study

The research was conducted in Kakiri Health Centre IV which is found in the Central part of Uganda-Kakiri Town Council.

3.3 Study population

The population of study was elderly individuals who have lived with HIV and on ARV at Kakiri Health Centre IV. Since people living with HIV undergo treatment, therefore the study only tried to understand the cognitive appraisal and how it affected their ART adherence. Kakiri district has a total population of approximately 1,959 500 (Uganda Bureau of Statistics, 2014). The prevalence of HIV in the central region of Uganda is estimated at 8.5% (Uganda AIDS Commission, 2015).

3.4 Population sample/ sample size

The elderly were defined as those people of 50 years and above as recommended by the World Health Organization. The researcher thus considered the age of 50 years and above as the respondents who had the capacity to provide informed consent. The sampling size in this study were the elderly living with HIV and attending medication at Kakiri Health Centre IV which is second care provider for people living with HIV in wakiso, with a total clientele of over 1,553 of which 479 were the patients. The study used only elderly patients from the target of 479 people.

The study used Morgan and Krejcie (1970) Table for determine sample size of a known population. The study targets 479 patients, whereby a sample size of 214 respondents selected to participate in the study.

3.5 Sampling procedure

Purposive sampling technique was used in selecting participants in the study since only older people who were victims and are receiving ARV was selected. The study adopted simple random sampling procedure. Simple random sampling was a lottery method of sampling where individuals or samples are picked randomly from a group in the same population (Creswell,

2013). This type of sampling procedure avoids biasness and ensures proportional representation to select elderly people who are receiving ARV who were given questionnaire to respond to. On the other hand, the researcher used documentary analysis to gather data on adherence from the health centre.

3.6 Methods and Instruments of Data Collection

The study used qualitative and quantitative methods of data collection that was questionnaire and documentary analysis. The study used a self-administered questionnaire for patients, and documentary analysis for ARV adherence.

3.6.1 Self administered questionnaire

The researcher worked on a structured self-administered questionnaire with both closed and open ended questions. The questionnaire was appropriate since it was flexible not expensive and not biased. The data of the study was collected using both structured and semi structured questionnaire that consisted of items that measures cognitive appraisals, religiosity, and ARV adherence.

3.6.2 Documentary Review

The researcher used document review to obtain existing statistical data for ARV adherence among the elderly patients for the last one year. A structured document review guide was used to collect the data from the health centre to justify the ARV adherence rates. Document reviews helps in providing dependable data that has already been analyzed though for a different purpose but can be manipulated to suit the purpose of the current study.

3.7 Quality Control

3.7.1 Validity

The researcher established content validity of the instruments by making sure that the items on the main variables conform to the conceptual framework of the study. The opinion of the supervisors on the relevance, wording and clarity of the items in the instruments was sought and there was validation of the question items. Accuracy of information was assured by the use of relevant instruments. The minimum CVI is 0.6 and calculated CVI ought to be above the threshold. The questionnaire was subjected to rating and Content Validity Index (CVI) by using the following formula:

CVI=

$$\frac{Total\ number\ of\ relevant\ items}{Total\ number\ of\ items}$$

CVI= 24/27 =0.89 which was above 0.6 hence the items was taken to be valid.

3.7.2 Reliability

Reliability is synonymous to consistence and reliability over time, over instruments and over groups of respondents. Reliability is concerned with precision and accuracy. For research to be reliable it must demonstrate that it was carried out on a similar group of respondent in a similar context, if similar results were found (Creswell, 2013). The researcher used the Statistical Package for Social Scientists (SPSS) to ascertain this. The researcher carried out a pre-test on the research instruments to determine its reliability.

The purpose of administering the pre-test was to determine the reliability of the instrument and by finding out whether the questionnaire was interpretive by the respondents and to check its

consistency from one respondent to another on the variables being studied. A pre test was done among 15 older people who were receiving ARV in the study area and those who participated in the pre-test were not used in the real field work study. Cronbach's Alpha of 0.7 and above was used to determine the coefficient of reliability using Statistical Package of Social Scientists. The instrument was regarded reliable and good for data collection when the test result was above 0.7 and since the result was 0.792 the toll was considered to be reliable.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.792	24

3.8 Procedure of Data Collection

The researcher first got an introductory letter from Post Graduate School introducing the researcher to the health facility after the proposal had been approved.This letter introduced the researcher to the management to seek permission to collect data relevant for the study. The researcher personally distributed the research questionnaires and conduct documentary review. Each questionnaire was accompanied by a letter explaining the general purpose of the study.

3.9 Data processing and analysis

The questionnaires collected were checked to ensure whether all items are filled. The raw data was compiled and analyzed both qualitatively and quantitatively from the organized according to the objectives of the study and research questions. The organized data was presented in

frequency tables for discussion and interpretation of meaningful data. This was done using the SPSS program.

3.9.1 Quantitative Data Analysis.

After a successful data collection exercise, the data was sorted objective by objective, and coded. The analysis was systematically and consistently done for each of the three research questions. Using IBM SPSS statistics 20 the researcher produced frequency tables, Correlation coefficient tables which were used for the discussions, interpretation and drawing conclusions

Data processing in this study started with editing, coding, transcription, data entry and data cleaning, tabulation and report formatting to ensure that the data collected was accurate and completed before data was analyzed. Data processing was done during and after fieldwork. Objectives 1 and 2 were analyzed using descriptive statistics such as the frequency, percentage mean and objective 3 was analyzed using Pearson Correlation Product Moment as well as linear regression to ascertain the influence.

3.9.2 Qualitative Data Analysis.

The qualitative data collected was coded and grouped according to the study objectives and emerging themes for through thematic methods and content analysis. Thematic analysis involved grouping of information with similar meaning. Content analysis helped to summarize words into fewer content related categories. Social scientists use content analysis to examine patterns in communication in a replicable and systematic manner. One of the key advantages of using content analysis to analyze social phenomena is its non-invasive nature, in contrast to simulating social experiences or collecting survey answers. Qualitative data supplemented quantitative data and helped in providing explanations.

3.10 Ethical Considerations

Ethical matters are important in carrying out a research work. The researcher made sure that participants were not subjected to risks. The ethical issues that were considered are: confidentiality, anonymity and informed consent. Confidentiality was guaranteed. In data analysis and interpretation, ethical issues were considered by protecting the anonymity of the participants. Participants' names were not mentioned in data analysis. The participants were informed that the researcher would handle the raw data and that the research was used for academic purpose only. The researcher explained to the respondents the purpose of the study to make them chose to participate in it on their own by signing a consent form.

Anonymity was maintained by protecting the identities of the respondents by not linking the respondents' identities to their responses. The researcher kept promises and agreements; act with sincerity; strive for consistency of thought and action as a mean of promoting integrity. In addition, the researcher was careful and critical in examining the work and the information from the participants and kept good records of research activities, such as data collection, and research design. To promote openness, the researcher allowed openness to criticism and new ideas and acknowledgement or credit for all contributions to research. As well as protect confidential communications.

The researcher was responsible for the conduct of the research and the consequences of that research. Thus the researcher accepted individual responsibility of the entire process.

Informed consent was obtained from subjects who participated in the study and it ensured that all subjects participated voluntarily. The researcher explained clearly the study in advance and promised to de-brief subjects afterwards (Kothari, 2013). The explanations were key in gaining informed consent from the participants. Informing the participants about the results of the study

built trust and justified the study to the participants. The results of the study and the recommendations proposed impacted on the participants' future actions and perceptions.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.0 Introduction

This chapter presented the results, analysis, interpretations and discussion of the study findings on cognitive appraisal in terms of acceptance, family resources and psychological wellbeing on adherence to antiretroviral therapy among elderly persons living with HIV a case of Kakiri Health Centre IV HIV clinic. The study was guided by the following objectives:

i. To examine the relationship between acceptance and adherence to ARV among elderly persons living with HIV

ii. To determine the relationship between family support and adherence to ARV among elderly persons living with HIV

iii. To establish the relationship between Psychological Wellbeing on adherence to ARV among elderly persons living with HIV

The study adapted a case study design with both qualitative and quantitative research approaches. Data was gathered from 162 respondents using a self administered questionnaire.

4.1 Response Rate

The study targeted population was 479 respondents with the sample size of 214. The researcher gave out 214 questionnaires and only 192 questionnaires were returned which was approximately 89.7% responses rate of what was distributed.

Table 4.1: Questionnaire Response Rate

Target population	Sample size	Returned	Percentage
479	214	192	89.7

4.2 Respondents Profile

Table 4. 2: Respondents Profile

Age bracket	Frequency	Percent
Young elderly 65-74	140	73
Medium elderly 75-84	52	27
Total	192	100
Sex		
Male	74	38.5
Female	118	61.5
Total	192	100.0

On the issue of age bracket, majority 140(73%) of the respondents were between 65-74 years, whereas 52(27%) were 75-84 years. This implies that most of the adults under ART clinic were 65-74 years.

In regard to the gender, 118(61.5%) of the respondents were female while 74(38.5%) were male. This implies that there were more female respondents as compared to male and it corresponds with the documentary analysis that more females go for care than men. Therefore, female views dominate the study findings although those of males are substantively represented.

4.3 Adherence to ARV

Table 4.3 Descriptive statistics of Adherence to ARV

	SD	D	A	SA	Mean	Std. Deviation
The ART clinic provides counseling services that promote my adherence.	31(19.7%)	53(32.7%)	48(29.6%)	30(18.5%)	2.7617	.98540
There availability of ARV drugs make me to adhere to it.	50(30.9%)	55(34%)	57(35.2%)	00(00%)	2.8667	.97316
Monitoring of CD4, viral load and optimistic infection make me to adhere.	62(38.3%)	70(43.2%)	13(8.0%)	17(10.5%)	2.5642	.81975
Aggregate mean and Std.					*2.624*	.91909

The table above shows that the Aggregate mean and Standard deviation were as 2.624 and 0.91909 respectively. The art clinic provides counseling services that promote my adherence had the mean of 2.7617 and the standard deviation of 0.98540. While looking at the availability of ARV drugs make me to adhere to it with a mean of 2.8667 and a standard deviation of 0.97316 and lastly looking at monitoring of cd4, viral load and optimistic infection make me to adhere had a mean of 2.5642 and a standard deviation of 0.81975

4.4 Acceptance and Adherence to ARV

One of the study objectives was to determine acceptance and adherence to ARV among elderly persons a case of Kakiri Health Centre IV HIV Clinic. In order to examine the relationship between acceptance and adherence the study looked at respondents views which are presented in table 4.3

Table 2. 4: Descriptive statistics of Acceptance

	SD	D	A	SA	Mean	Std. Deviation
Going for ART is always stressful to me.	26(16%)	48(29.6%)	58(35.8%)	30(18.5%)	2.5679	.97086
My ability to do visit ART clinic is a must since I know the consequences.	26(16%)	51(31.5%)	48(29.6%)	37(22.8%)	2.5926	1.01269

I am confident in using ARV always for my survival.	22(13.6%)	62(38.3%)	46(28.4%)	32(19.8%)	2.5432	.95942
I perceive that ART clinic provide necessary support to me during my visits at the clinic.	33(20.4%)	64(39.5%)	47(29%)	18(11.1%)	2.3086	.92100
I feel my environment provide new information which makes me to adhere to ART.	15(9.3%)	35(21.6%)	67(41.4%)	45(27.8%)	2.8765	.92425
I value antiretroviral treatment.	23(14.2%)	50(30.9%)	54(33.3%)	35(21.6%)	2.6235	.97812
I have fear of long-term damage to body organs through the use of ARV.	31(19.1%)	76(46.9%)	37(22.8%)	18(11.1%)	2.2593	.89551
I feel ART disrupts my routine or having a chaotic schedule.	33(20.4%)	84(51.9%)	34(21%)	11(6.8%)	2.1420	.81802

Fear of disclosure affects my adherence of ART	8(4.9%)	48(29.6%)	74(45.7%)	32(19.8%)	2.8025	.81018
Aggregate mean and Std.					*2.524*	*0.9211*

Findings from table 4.4 above show that there was high acceptance and adherence to ARV among elderly persons a case of Kakiri Health Centre IV HIV Clinic as shown with a mean of 2.524 and standard deviation of 0.9211. This implies that on average the respondents agreed that they know the consequences of not visiting ART clinic, they are confident in using ARVs for survival, the environment provide new information that makes them to adhere and they value antiretroviral treatment. Lastly respondents acknowledged that fear of disclosure affects my adherence of ART.

Although respondents acceptance was high, there were issues with adherence since patients reported a number of negative perceptions about HAART, these included fearing the side effects, concerns on strict adherence, inconveniences and practical problems associated with different regimen, distrusting the conventional medicine, fearing long term damage of the body organs, and the perceptions about starting medication in the absence of symptoms. Mills *et al., (*2006) noted that some patients had the perception that ART disrupts their routines creating a chaotic schedule; finding showed that HAART too is inconvenient or difficult to incorporate and these difficulties lead to coordinating adherence with work, families or care giving responsibilities at

homes. Difficulties in balancing the numerous strict dietary requirements associated with HAART; sleeping through a dose.

In light of the findings, it was discovered that respondents going for ART is always stressful to them, since 88(54.3%) of the respondents agreed at different levels. This implied that on average going for ART is stressful which affects adherence in one way or another. In addition, on whether respondents ability to visit ART clinic is a must since they know the consequences, the findings show that 85(52.4%) of the respondents agreed at different levels while 77(47.6%) disagreed. This implies that respondents' ability to visit ART clinic is a must due to consequences of not attending. Based on the result half of the respondents know the consequences while the other half do not know.

This may account for the fact there is low adherence as found out through documentary analysis in which less than 43.2% of the respondents do not adhere ARV. Concerning whether respondents are confident in using ARVs the findings show that 84(51.9%) of the respondents disagreed at different levels and 78(48.1%) agreed. This indicates that an average majority do not trust full the ARV although they are using it. In this case there are those who use ARV for survival and there those who feel that their life depends on other things.

In reference to whether respondents perceive that ART clinic provides necessary support during their visits at the clinic, the findings show that majority 97(59.9%) of the respondents disagreed at different levels while 65(40.1%) agreed. In this case, ART clinic do not provide necessary support during the respondents visits which can be attributed to the fact that some people fear to have time to talk and be counseled during the process. Indeed some ART clinics fail to be professional in dealing with adults and their adherence to ARVs which affects their adherence in different ways.

The study found out that respondents felt that their environment provides new information which makes them to adhere to ART since 112(69.2%) of the respondents agreed at different levels while 50(30.8%) disagreed. This shows that the different means of promoting adherence through the media and other schools that are found within the environment enable the respondents to adhere to ART. In valuing antiretroviral treatment, the findings indicate that 89(54.9%) of the respondents agreed at different levels while 73(45.1%) disagreed. A number of people value ART although there are those who do not which may explain the numbers that fail to adhere to ART as found out through documentary analysis.

In fact the records from the ART clinic indicates that quite a good percentage do not adhere to since they report one after some months have lapsed. The study found out that respondents were not fearful damage of their body organ due to use of ARVs as shown by 107(66%) while only 55(34%) who were found to be fearful do long term damage of body organ as a result of using ARVs.

In addition, it was found out that ARTs does not disrupt routine or having a chaotic schedule as shown with 117(72.3%) who disagreed and 45(27.7%) agreed. Therefore, ART does not disrupt respondents' routine or having chaotic schedules. Likewise, the study found out that fear of disclosure affects adherence of ART as indicated by 106(65.5%). Those who fear find it hard to follow the schedules for ART which negatively impacts on their adherence.

In line with the findings of this study, Lyimo et al. (2014) noted that a client who is more knowledgeable about HIV, the importance's of maintaining the recommended adherence levels would tend to follow all the instructions regardless of medication intake as compared to the clients with no any information. Some negative beliefs regarding the efficacy of HAART may have also influenced ART adherence behaviors resulting to non adherence (Paterson, 2010). Poor

adherence to drugs had also been associated with patients desire to avoid embarrassment side effects (body rush) in certain situations such as on a date or at a job interview.

Relationship between Acceptance and Adherence to ART

The last objective of the study was to establish the relationship between cognitive appraisals on adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. The study hypothesized that there is no relationship between cognitive appraisals on adherence to ARV among elderly persons a case of Kakiri health centre HIV clinic.

Tables 4.5 below shows the correlation analysis of Acceptance and adherence to ARV

		Adherence to ARV	Acceptance
Adherence to ARV	Pearson Correlation	1	.369**
	Sig. (2-tailed)		.001
	N	162	162
Acceptance	Pearson Correlation	.369**	1
	Sig. (2-tailed)	.001	
	N	162	162
**. Correlation is significant at the 0.01 level (2-tailed).			

There is a positive significant relationship between acceptance and adherence to ARV ($r = 0.369$, $p = 0.001$). The findings suggest that people with acceptance tend to have good adherence to ARV.

4.5 Family Support and Adherence to ARV

Another study objective was to determine the relationship between family resource and adherence to ARV among elderly persons a case of Kakiri Health Centre HIV Clinic.

Table 4.6: Descriptive statistics of Family resource

	SD	D	A	SA	Mean	Std. Deviation
Financial dependence on others such as the family and government programs hinders my adherence of ART.	24(14.8%)	53(32.7%)	55(34%)	30(18.5%)	2.5617	.95840
Lack of family support make me to fail to go for ARV.	23(14.2%)	55(34%)	57(35.2%)	27(16.7%)	2.5432	.93316
Support from government programs enable me to attend Art clinic.	25(15.4%)	70(43.2%)	50(30.9%)	17(10.5%)	2.3642	.86875
Income of the family relate to my ability to purchase medications hence adhering to ARVs.	18(11.1%)	50(30.9%)	62(38.3%)	31(19.7%)	2.6667	.91909
Lack of money for transport to clinic is associated with non-adherence to ART	12(7.4%)	45(27.8%)	65(40.1%)	40(24.7%)	2.8210	.89098

Medication-related costs hinder my ART adherence.	26(16%)	75(46.3%)	46(28.4%)	15(9.3%)	2.3086	.85090
Aggregate mean and Standard Deviation					*2.544*	*0.9035*

Findings from table 4.6 above shows that family resource and adherence to ART among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic as shown with a mean of 2.544 and standard deviation of 0.9035. This implies that financial dependence, lack of family support, income of the family and lack of money for transport reduces adherence. Financially dependency was a predictor for adherence among the younger individuals, creating a possible relationship between income and adherence, as finances and income relate to the ability of purchasing medications.

The findings of the study are in line with Sophia, Carlos (2014) who pointed out that people living with HIV (PLHIV) in Ethiopia and some other developing countries face numerous challenges to their health and well being, including high poverty levels, limited healthcare infrastructures and high levels of societal stigma. Irrespective of these challenges, resilient trajectories have been observed even within such resource limited settings. In Ethiopia, such resiliencies are exemplified by the Expert Patients (EPTs), some HIV positive health workers who function as adherence counsellors, others as health educators, outreach workers and community advocators.

On the issue of whether financial dependence on other such as the family and government programs hinders respondents adherence of ART, the findings show that 85(52.5%) of the respondents agreed at different levels. This indicates that financial dependence on family or

government programs hinders adherence of ART. In this case, those who depend on family or government or get transport may be affected to adhere once they do not get transport or means of accessing the ARVS which reduces the adherence rates. The study also found out that family support make some respondents to fail to go for ARVs since 84(51.9%) of the respondents agreed. This implies that once the family fails to support the individuals they may not be in position to go for ARVs which reduces the adherence rates. Therefore lack of family support may be a factor that hinders ARV adherence among the adults in ART clinics.

The study further found out that support from government does not promote attendance to ART clinics since 95(58.6%) disagreed at different levels. This means that although the government programs being in place they do not make adults to attend to ART. This can be attributed to the fact that government does not provide means of transport nor move the medication to the people. On whether income of the family enable purchasing of medications that promote adherence to ARVS, the respondents agreed at different levels as 94(58%) agreed while 68(42%) disagreed. Therefore, families with low income affects adherence to ARVs among adults since they have many issues to handle at family level. More so, lack of money for transport to clinic is associated with non-adherence to ART since 105(64.8%) of the respondents agreed at different levels while 57(35.6%) disagreed. In this respondents with low income find it difficult to commute to access ART which reduces the adherence rates. Lastly, it was also found out that medication related costs hinder respondents adherence to ART since 101(62.3%) of the respondents disagreed. This means that the costs such as transport and other treatment may hinder adherence in one way or another.

According to the findings the resources constrained the settings of sub Saharan Africa, some household poverties and orphan hood had emerged as some of the most important predictors of

adherence to ART among HIV infected people. The lack of food staffs and money for transport to go to the clinic for refilling their prescriptions was also associated with non adherence to ART (Biadgilign et al., 2009, Pearce, et al., 2008).

In a study of HIV, men and women (Kremer et al. 2009) believing that health was controlled by God or a higher power were 4.75 times more likely to refuse ART compared to those not sharing this belief. On the contrary, those who believed that spirituality helped them cope with the side effects of medication reported better adherence (Kremer et al. 2009).

Relationship between Family resource and Adherence to ART

The last objective of the study was to establish the relationship between cognitive appraisals on adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. The study hypothesized that there is no relationship between cognitive appraisals on adherence to ARV among elderly persons a case of Kakiri health centre HIV clinic.

Tables 4.7, below shows the correlation analysis of Family resource and adherence to ARV

		Adherence to ARV	Family resource
Adherence to ARV	Pearson Correlation	1	.281*
	Sig. (2-tailed)		.011
	N	162	162
Family resource	Pearson Correlation	.281*	1
	Sig. (2-tailed)	.011	
	N	162	162
*. Correlation is significant at the 0.05 level (2-tailed).			

There is a negligible positive low significant relationship between Family resource and adherence to ARV ($r = 0.281$, $p = 0.011$). The findings suggest that adherence to ARV does not depend on the Family resource of the elderly people.

4.6 Psychological wellbeing and Adherence to ARV

The third objective of the study to establish the relationship between psychological wellbeing and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic

Table 4.8: Descriptive statistics of Psychological Wellbeing

	SD	D	A	SA	Mean	Std. Deviation
Depression frequently affect my ARV intake.	28(17.3%)	65(40.1%)	53(32.7%)	16(9.9%)	2.3519	.88094
Many Physical stressors lead to depression, and other mental problems, all of which can interfere with behavior of adherence to ART.	16(9.9%)	39(24.1%)	70)43.2%)	37(22.8%)	2.7901	.90843
Some patients who perceive less emotional support are less confident in their ability to adhere to ART.	13(8%)	48(29.6%)	61(37.7%)	40(24.7%)	2.7901	.90843
Psychological distress impact adherence to ART.	16(9.9%)	38(23.5%)	58(35.8%)	50(30.9%)	2.8765	.96372

Religion affects health care decision making and health care outcomes including the quality of life.	16(9.9%)	52(32.1%)	65(40.1%)	29(17.9%)	2.6605	.88580
My religious beliefs create distress and increase the burden of illness.	27(16.7%)	65(40.1%)	49(30.2%)	21(13%)	2.3951	.91474
Aggregate mean and Std. Deviation	*162*				*2.644*	*0.9103*

From table 4.8 above shows that the study found out that there was high psychological wellbeing that affect adherence to ARV among elderly persons a case of Kakiri Health Centre HIV Clinic with a mean of 2.644 and standard deviation of 0.9103. This therefore, implied that psychological wellbeing affect adherence to ARV among elderly living with HIV. Therefore, physical stressors and patients who perceived less emotional support, psychological distresses and their religions affect health care decision by making that affects adherence to ART within the adults living with HIV in Kakiri. Not all social environments discouraged patients' adherence to ART. Some social contexts were supportive to improve the psychological wellbeing states in people living with HIV.

Mounting evidence suggested that social support influenced adherence to HIV treatment (Gonzalez et al., 2004). In addition, social support may enhance mental resources and strategies, which in turn may influence healthful behavior, such as an individual's ability to adhere to the complex prescription regimen required in HIV treatment. Prior to exploring the nature of HIV treatment, it is important to explain HIV and how it affects an individual living with this virus

socially and psychologically. People living in supportive social contexts can have more healthful behavior (Gonzalez et al., 2004) than those who are not. Social resources may influence a patient's level of adherence to ART. Individuals who receive or perceive social support from a social network typically believe that they can manage difficult tasks better than those who do not have similar resources. Catz et al. (2000) found that patients who perceived less emotional support were less confident in their ability to adhere to ART.

On the issue of whether depression frequently affect ARV intake, the findings indicate that 93(57.4%) of the respondents disagreed at different levels while 69(42.6%) agreed. This implies that depression does not affect ARV intake. Those who are depressed can still take ARV which promotes adherence. The study found out that physical stressors may lead to depression and other mental problems interfere with behavior of adherence to ART as shown by 107(66%) of respondents who agreed while 55(34%) disagreed at different levels. Physical stressors cause havoc that reduces adherence to ART which affects individual immunity at the long run. On the other hand, respondents noted that patients who receive less emotional support are less confident in their ability to adhere to ART since 101(62.4%) of the respondents agreed at different level while 61(37.6%) disagreed. In this case, patients who receive less emotional support are more likely to be less confident which affects their ability to adhere to ART.

It was also found out that psychological distress impact adherence to ART since 108(66.7%) of the respondents agreed at different levels while 54(33.4%) disagreed. This means that psychological distress affect adherence to ARV among adults in different ways since it comes from different sources. Religion was found to affect health care decision making and health care outcomes including quality of life as reflected with 94(58%) of the respondents agreed at different levels while 68(42%) disagreed. Religion impacts on adherence to ART. The study

further recognized that religious beliefs does not create distress and increase the burden of illness since 92(56.8%) of the respondents disagreed at different levels while 70(43.2%) agreed. This means that religious beliefs do not create distress that increases illness. Therefore, religious beliefs promote adherence.

Psychological distress may impact adherence to ART through various mechanisms. Psychological distress is closely associated with feelings of helplessness and loss of self-esteem due to perceived inability to cope with situations that demand effective response; these may impair self-care behaviors among distressed persons. Additionally, the behavioral changes e.g. substance and drug abuse that may occur as adaptations or coping responses to psychological distress may impact adherence to ART. Psychological distress may cause disruptions in the neuroendocrine system, resulting in marked changes in health-related behaviors (e.g. alcohol and substance abuse) or other failures in self-care (Kagee &Delport, 2010).

Beyond these direct pathways, psychological distress may cause changes in the immune system, thereby reducing the efficacy of ART mediated immune responses; this may result in increased disease progression and risk for mortality (Cohen et al., 2007; Leserman, 2008). Disease progression and morbidity may also create barriers to ART adherence, particularly if they reduce ART optimism. Further, psychological distress or its related feelings of helplessness and loss of self-esteem may compromise an adolescent's ability to mobilize psychosocial resources, which prevent or attenuate appraisal of an event or stimuli as stressful.

Relationship between Psychological Wellbeing on Adherence to ART

The last objective of the study was to establish the relationship between cognitive appraisals on adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV

Clinic. The study hypothesized that there is no relationship between cognitive appraisals on adherence to ARV among elderly persons a case of Kakiri health centre HIV clinic.

Table 4.9: Relationship between Psychological Wellbeing on adherence to ARV

		Adherence
Psychological Wellbeing	Pearson Correlation	.264**
	Sig. (2-tailed)	.001
	N	162

**. Correlation is significant at the 0.01 level (2-tailed).

Findings in table 4.9, show significant relationship between Psychological Wellbeing on adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. Calculation by computing the scores using Pearson Correlation Coefficient with a statistical package SPSS indicated a positive relationship Psychological Wellbeing had r = 0.264 and p=0.001. The implication here is that Psychological Wellbeing positively impacted on adherence of adults in Kakiri Art Clinic. The findings show that Pearson Correlation coefficient was 0.264 and therefore determining the coefficient of determination is 0.264 x 0.264, which is 0.069696×100 which is 6.97%. Therefore, cognitive appraisal in terms of acceptance, family resource and psychological accounts for adherence of adults to ART by 6.97 and therefore there are other factors that affect adherence that this study did not handle.

Though documentary analysis the percent for adherence was 57.3% among the surveyed respondents which was average or low. This implies that many of those who go for ART rarely adherence since the percent was average. Over the period of five years the adherence of patients

has below 50% since in 2016 the adherence rate was 39.4%, whereas in 2017 it was 42.3% and in 2018 it was 46.2% while in 2019 it was 57.3% in 2020 it was less than 24.2% due Covid-19 pandemic.

In secondary appraisal, an individual evaluates his or her ability to do something about the already-suffered harm, threat, and challenge. An understanding of secondary cognitive appraisal might help in the attempt to account for stressor response variability among people under comparable conditions. The question he or she strives to answer is what can I do? given the cognitive appraisal of a situation as harmful, threatening, or challenging. At this level, an individual evaluates the coping options to determine whether a given coping option will accomplish what it is supposed to accomplish (Lazarus & Folkman, 1984).

Some of the questions that people ask themselves in secondary appraisal include can I apply a given strategy effectively? or What would be the consequences of using a particular strategy in the context of other internal and external demands and constraints? Whether people can perform specific tasks depends upon (a) their confidence in themselves and (b) their perception of the available support from their social network. Details about types of support and how they may or may not be useful in understanding coping are discussed under the section addressing social support. Third, reappraisal refers to a changed appraisal based on new information from an environment.

For example, a person living with HIV may change his or her appraisal of HIV as threatening following an improvement in health and a significant drop in viral load.

In testing the hypothesis, the findings in Table 7 showed that cognitive appraisals and adherence to Art correlation exists significantly at 0.01 levels (2-tailed) as Pearson correlation coefficient

was r. 0.264 and p. value 0.001 showed a positive relationship of contrive appraisal on adherence to ART among adults in Kakiri ART Clinic. Therefore, cognitive appraisal in terms of acceptance, family resources and psychologically affected adherence to antiretroviral therapy among elderly living with HIV a case of Kakiri Health Centre HIV clinic.

The study null hypothesis stated that there is no relationship between cognitive appraisals on adherence to ARV among elderly persons a case of Kakiri health Centre HIV clinic is hereby rejected and the alternative hypothesis which stated that there is a significant relationship between cognitive appraisals on adherence to ARV among elderly persons a case of Kakiri health centre HIV clinic is accepted.

Massy, & Bauermeister (2016) carried out a study on psychological distress and found out that it was common among adolescents living with HIV (ALHIV) worldwide, and had been associated with non adherence to anti retroviral therapy (ART), leading to poor virologic suppression, drug resistance, and increased risk for AIDS morbidity and mortality. However, only a few studies had explored the relationship between psychological distress and ART adherence among adolescents in sub Saharan Africa. The study conducted a cross sectional survey of 464 ALHIV (aged 12–19; 53% female) seeking HIV care at a large HIV treatment center in Kampala, Uganda. ALHIV were recruited during routine clinic visits.

Three self reported binary adherence measures were utilized: missed pills in the past three days, non adherence to the prescribed medical regiments, and self rated adherence assessed using a visual analog scale. Psychological distress was measured as a continuous variable, and computed as the mean score on a locally developed and validated 25 item symptom checklist for Ugandan ALHIV. Psychosocial resources included spirituality, religiosity, optimism, social support, and

coping strategies. These were associated with lower odds for non adherence on all three self report measures.

The study recommended that there was a need to strengthen the psychosocial aspects of adolescent HIV care by developing interventions to identify and prevent psychological distress among Ugandan ALHIV. However, the study was based on the youths and not elderly which was the concern of the current study. Therefore, the study examined the relationship between psychological wellbeing and ART adherence, and effect of psychosocial resources on ART adherence among elderly persons living with HIV.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presented the summary, conclusion and recommendations of the study findings on cognitive appraisal in terms of acceptance, family resources and psychological wellbeing and adherence to antiretroviral therapy among elderly persons living with HIV a case of Kakiri Health Centre HIV clinic.

5.1 Summary

The study was guided by the following objectives: to determine acceptance and adherence to ARV among elderly persons living with HIV, to establish family resource and adherence to ARV among elderly persons living with HIV, to determine psychological wellbeing and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic and with the purpose of establishing the relationship between cognitive appraisals on adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. The study adapted a case study design of both qualitative and quantitative research methods. Data was gathered from 162 respondents using a self administered questionnaire.

There was a high acceptance and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic as shown with a mean of 2.524 and standard deviation of 0.9211. This implied that on average there respondents agreed that they know the consequences of not visiting ART clinic, they are confident in using ARVs for survival, the environment provided new information that made them to adhere and they valued antiretroviral treatment.

Family support and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic was high with a mean of 2.544 and standard deviation of 0.9035. This implied that financial dependence, lack of family support, low income levels of the families and lack of money for transport reduced adherence. Financial dependence was a predictor for adherence among younger individuals, creating a possible relationship between income and adherence, as finances and income related to the ability to purchase medications.

The study found out that there was a high psychological wellbeing that affected adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic with a mean of 2.644 and standard deviation of 0.9103. This implied that psychological wellbeing affected adherence to ARV among elderly persons living with HIV. Therefore, physical stressors, patients who perceived less emotional support, psychological distress and religion affects health care decision making that affects on adherence to ART among adults in Kakiri. Not all social environments discouraged patients' adherence to ART. Some social contexts were supportive to improve the psychological wellbeing stated in people living with HIV.

The study found out that a significant relationship between cognitive appraisals and adherence to ART among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic with r.= 0.264 and p.=0.001, which implied that there was a positive relationship of cognitive appraisal on adherence to ART among adults in Kakiri ART Clinic.

5.2 Conclusion

In light of the study findings the study concludes that there was high acceptance and adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. Family support affects adherence to ARV among elderly persons living with HIV a case of Kakiri Health Centre HIV Clinic. Likewise, psychological wellbeing that affect adherence to

ARV among elderly persons living with HIV attending Kakiri Health Centre HIV Clinic. The study found a significant relationship between cognitive appraisals on adherence to ART among elderly persons living with HIV attending Kakiri Health Centre HIV Clinic.

5.3 Recommendations

Based on the study findings the researcher makes the following recommendations:

In line with the first objective, the study recommends that there should be achievable psychological strategies like psycho-education exposed to the psychologists and counselor trainers so that they come up with effective and empirically proved psychological interventions for the families faced with acceptance and adherence in order to help affected victims in families. This will be helpful in mitigation of poor adherence and its long term effect of persons who have been affected by the situation.

The government of Uganda through the Ministry of Health should take into consideration the nature of the victims for them to have access to work that can support their income in order to ensure that there is high adherence to ART. The ART clinics in the country should work out ways to provide guidance and counseling towards acceptance among the victims of HIV/AIDS in order to promote adherence to ART.

Other NGOs and organizations need to help to support victims of HIV/AIDs as a means of empowering them to overcome their psychological trauma in order to adhere to ART. Clinics in the country providing ART should design targeted interventions to address the determinants of social demographic, psychosocial, healthy status and treatment intervention.

The study recommends that, there is need for proper understanding of the different stages of adherence and cognitive appraisals a manger people with their expected needs. Therefore

flexibility should be emphasized by the councilors among the patients as they grow. Family members need to understand that all their actions and decisions have related consequences thus the need for flexibility as people grow. Families must teach their children things that march with their age which calls for parents to grow with their children from one stage to the others

For Further Studies

Other scholars should investigate other factors affecting non adherence to ART among elderly people living with HIV since the factors covered only accounts for 6.97%.

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Appendix *2*: Consent Form

I am **Buthamira M. Elisha Braos**, a student at University of Kisubi pursuing a Master's degree **in Clinical and Psychological Counselling**. As part of the necessities for the award of this degree, am conducting investigation with a title COGNITIVE APPRAISAL AND ADHERENCE TO ANTIRETROVIRAL THERAPY AMONG ELDERLY PERSONS ATTENDING KAKIRI HEALTH CENTRE HIV CLINIC

Privacy: If you agree to participate in this study, the facts obtained from you during this study will be kept private. After one year, the questionnaire or interview guide will be destroyed as all the information will be summarized in one book called thesis. Only your signature is required on the consent form to prove you have voluntary agreed to participate. Your name and photo will not be recorded and no one will penalize you for your opinion. To participate in this study, you should be an elderly person who are receiving ARV at Kakiri Health centre.

Benefit; Information obtained from you will be used by the Ministry and Health and other NGOs that deal with HIV/AIDS and health in general to promote policies that may help to improve elderly adherence to ART. It will also add on the knowledge available. At the end of the study, you will be given a report on cognitive appraisal and religiosity and elderly adherence to ART.

Potential for harm: Participating in this study does not cause any physical harm to you. It will take 20 – 30 minutes of your time.

Rights as a Volunteer: Your participation is purely voluntary. You can refuse to answer any questions you are not comfortable with or skip questions you do not want to answer. You may contact the researcher at any time if you have Questions about the research.

Voluntary Consent: You are free to withdraw from this study at any stage. If you have fully understood the information presented to you and voluntarily agree to participate in this study, please sign or put a thumb print in the space below;

Signature of the respondent …… Date ……..

Signature of the researcher…….…….. Date ……

SECTION A: Personal Information

Please put (x) where appropriate in the box provided.

SECTION A: Demographic Information

1. **Age bracket:** i)Young elderly 65-74 ☐ ii) Medium elderly 75-84 ☐ iii) Old -old above 85 ☐
2. **Sex : i)** Male ☐ ii) Female ☐

Section: B Variable of the Study

Please put (√) where appropriate in the box provided.

Strictly tick one of the boxes indicating your agreement or disagreement to the following questions using the provided scale:

4= Strongly agree; 3=Agree; 2=Disagree; 1=Strongly disagree

	Cognitive appraisals	1	2	3	4
	Acceptance				
1	Going for ART is always stressful to me.				
2	My ability to do visit ART clinic is a must since I know the consequences.				
3	I am confident in using ARV always for my survival.				
4	I perceive that ART clinic provide necessary support to me during my visits at the clinic.				
5	I feel my environment provide new information which makes me to adhere to ART.				
6	I value antiretroviral treatment.				
7	I have fear of long-term damage to body organs through the use of ARV.				
8	I feel ART disrupts my routine or having a chaotic schedule.				

9	Fear of disclosure affects my adherence of ART				
	Family Resource				
10	Financial dependence on others such as the family and government programs hinders my adherence of ART.				
11	Lack of family support make me to fail to go for ARV.				
12	Support from government programs enable me to attend Art clinic.				
13	Income of the family relate to my ability to purchase medications hence adhering to ARVs.				
14	Lack of money for transport to clinic is associated with non-adherence to ART				
15	Medication-related costs hinder my ART adherence.				
	Psychological				
16	Depression frequently affect my ARV intake.				
17	Physical stressors may lead to depression, and other mental problems, all of which can interfere with behavior of adherence to ART.				
18	Patients who perceive less emotional support were less confident in their ability to adhere to ART.				
19	Psychological distress impact adherence to ART.				
20	Religion affects health care decision making and health care outcomes including the quality of life.				
21	My religious beliefs create distress and increase the burden of illness.				
	Adherence to ART				
22	The ART clinic provides counseling services that promote my adherence.				
23	There availability of ARV drugs make me to adhere to it.				

24	Monitoring of CD4, viral load and optimistic injection make me to adhere.				

In your view, what should be done to improve Adherence to ART among elderly patients?

……
……
……
……..

How has cognitive appraisals affected your adherence to ART?

……
……
……
……..

Appendix 3: Documentary review

- Document the rate of adherence among the patients for the last five years based on the clinic's records.
- Analyze data on adherence of patients generally

APPENDICES

Appendix 1: Table for Determining Sample Size of a Known Population

Table 3.1

Table for Determining Sample Size of a Known Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

Note: N is Population Size; S is Sample Size *Source: Krejcie & Morgan, 1970*