THE PREVALENCE AND FACTORS ASSOCIATED WITH UNSUPPRESSED VIRAL LOADS AMONG ADOLESCENTS ATTENDING HIV CLINIC IN KIRYANDONGO HOSPITAL, KIRYANDONGO DISTRICT, UGANDA

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A RESEARCH DISSERTATION SUBMITTED TO THE FACULTY OF CLINICAL MEDICINE AND DENTISTRY IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE AWARD OF THE DEGREE OF BACHELORS OF MEDICINE AND SURGERY OF KAMPALA INTERNATIONAL UNIVERSITY

WESTERN CAMPUS, UGANDA

APRIL, 2018

DECLARATION

DECLARATION

I, **MULOWOZA Christine** hereby declare that this dissertation titled *'The Prevalence and Factors Associated with Unsuppressed Viral Loads among Adolescents Attending HIV Clinic in Kiryandongo Hospital, Kiryandongo District, Uganda'* is my original work and idea and has not been previously submitted by me or anyone, for any degree or diploma at this or any other institution.

Signature ..... Date: 02/MAY/2018

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APPROVAL

APPROVAL

This dissertation titled *'The Prevalence and Factors Associated with Unsuppressed Viral Loads among Adolescents Attending HIV Clinic in Kiryandongo Hospital, Kiryandongo District, Uganda'* has been prepared and submitted under my supervision:

Signature: ..... Date: 2/05/2018

DR. KAYINA VINCENT

(SUPERVISOR)

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DEDICATION

I dedicate this research report to my late father Mr. Elnathan Tukube Yiga your love, support words of wisdom and encouragement kept me going. My mother Mrs. Yiga Phoebe, siblings and dear friends your invaluable support, love, and encouragement throughout my academic journey. I couldn't have made it this far without your support and love.

ACKNOWLEDGEMENT

I thank God Almighty for the gift of life, good health, wisdom and everlasting love.

I am greatly indebted to my supervisor Doctor Kayina Vincent for his guidance, wisdom, time and transformative knowledge that he gave me throughout this period.

Furthermore I extend my special thanks to my dear family, friends, and lecturers for their support and invaluable words of wisdom and knowledge. Thank you all for your invaluable contribution to the development of this work. God bless you all

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DEFINITION OF TERMS

Unsuppressed viral loads: This is when the viral load is >1000copies/ml of plasma despite a person being on ART for a minimum of 6 months.

Adolescent: Transition phase of growth and development between childhood and adulthood .The WHO defines an adolescent as any person between ages 10 and 19.

Adherence: Describes the degree to which a patient correctly follows medical advice in terms of correct drug dosage, frequency and duration.

Disclosure: Defined as a process of revealing a person's HIV status whether positive or negative.

Virological failure: Plasma viral load above 1000 copies/ml based on two consecutive viral load measurements after three months with adherence support.

Clinical failure: New or recurrent clinical event indicating severe immunodeficiency (WHO clinical stage 4 condition) after 6 months of effective treatment.

Immunological failure: CD4 count falls to the baseline (or below) OR Persistent CD4 levels below 100 cells/mm3.

LIST OF ABBREVIATIONS.

AGPAF	Elizabeth Glaser Pediatric Aids Foundation.
AIDS	Acquired Immune Deficiency Syndrome
AMA	American Medical Association
ART	Antiretroviral therapy
BMS	Bachelor of Medicine and Surgery
FGDs	Focused Group Discussions
HCP	Health Communication Partnership
HIV	Human Immune Virus
HTC	HIV Testing and Counseling
JCRC	Joint Clinical Research Centre
KIU	Kampala International University
KIUTH	Kampala International University Teaching Hospital
MBChB	Bachelor of Medicine and Surgery
MOH	Ministry Of Health
NGO	Non-government Organization
PIDC	Pediatric Infectious Disease Clinic
SRH	Sexual and Reproductive Health
TASO	The AIDS Support Organization
UDHS	Uganda Demographic and Health Survey
UHSBS	Uganda HIV Sero Behavior Survey
UNAIDS	Joint United Nations Program on HIV and AIDS
KDH	Kiryandongo District Hospital

ABSTRACT

Introduction

There is a growing recognition that adolescents are a key population in need of attention within the worldwide HIV/ AIDS response. Globally, about 2.1 million adolescents between ages 10 and 19 years are living with HIV. In 2014, there were approximately 220,000 new HIV infections among adolescents aged between 15 to 19 years. This study was done at Kiryandongo hospital HIV Clinic.

Objectives

The objective was to determine the prevalence of HIV positive adolescents and the factors associated with unsuppressed viral loads among HIV positive adolescents attending HIV clinic at Kiryandongo hospital HIV Clinic from August 2014 to December 2017.

Methodology

The sampling was by getting hospital records from the HIV Care/ART card for HIV positive adolescents and interviews with health workers with experience and in-depth knowledge on HIV-Care in adolescents receiving ART care at the hospital.

Results

Most of the records show the adolescents attending ART clinic at Kiryandongo General Hospital were within a range of 10 to 13 years (62.5%), and the remaining 37.5% were between 14-19 years and up to 95% of the respondents had some form of formal education levels.

Up to 67% of the respondents had their viral load suppressed from treatment with ART while the remaining 33% had unsuppressed viral load. Of the 33% with unsuppressed viral load, 12.5% had their viral load suppressed after Intensive Adherence Counseling of 3 months while the 20.5% had no viral load suppression even after IAC. The unsuppressed viral load was attributable to non-adherence (25.4%) even after 3 months of IAC and 10.2% due to treatment failure and up to 28% did not change treatment to the second line and only 5% had changed treatment to the second line.

Up to 50% of the respondents had failed viral load suppression due to non-adherence to ART. Another 30% was due to non-disclosure by the care taker and 15% did not have anyone to remind them to take their ARVs while 5% had no care takers.

Conclusion

This study shows that participants to the study were in early teen years and up to 95% of the respondents had some form of formal education levels.

Two thirds of respondents had viral load suppressed from treatment with ART while the remaining a third had unsuppressed viral load. About 12.5% had their viral load suppressed after Intensive Adherence Counseling of 3 months while 20.5% had no viral load suppression even after IAC. The unsuppressed viral load was attributable to non-adherence even after 3 months of IAC and treatment failure. Up to 28% did not change treatment to the second line and only 5% had changed treatment. Factors contributing to non-adherence were lack of reminders and no care takers.

Recommendations

The following recommendations are suggested; parents/guardians should accompany their children during refills, should ensure that the HIV sero-status of such children are disclosed to them as early as possible. Parents/guardians should ensure that they disclose the sero-status of such children to another caring close family member.

The hospital HIV health providers, counselors and community volunteers should engage the parents/guardians and the children in FGDs, identify their problems and challenges and try to find and or address these problems or challenges. Parents/guardians should be counseled and sensitized about good nutrition and the side effects of ART.

CHAPTER ONE

INTRODUCTION

1.0 Study Background

The Elizabeth Glaser Pediatric AIDS Foundation (EGPAF) is the global leader in the fight against pediatric HIV and has reached over 24 Million women with services to prevent transmission of HIV to their babies. In 2015-2016, EGPAF was supporting activities in more than 6000 health facilities in 19 countries, to further activities that bring dramatic improvement to the lives of millions of women, children and families worldwide (EGPAF, 2016).

There is a growing recognition that adolescents are a key population in need of attention within the worldwide HIV/ AIDS response. Globally, about 2.1 million adolescents between ages 10 and 19 years are living with HIV. In 2014, there were approximately 220,000 new HIV infections among adolescents' aged between 15 to 19 years. Despite major advances in HIV prevention, care and treatment, adolescents are the only age group in which death due to AIDS are not decreasing in Africa. The majority of these deaths occur in adolescents who were infected at birth and in infancy (EGPAF, 2016).

Access to HIV testing and counseling (HTC) and uptake of ART by adolescents is significantly lower than by the adults. Coverage rates are lower for adolescents than for any other age group of persons living with HIV signaling a need for targeted adolescents programs. In addition there is a lack of expertise and training of health care workers and care givers and also managing a child's transition from pediatric to adult care including the psychosocial and reproductive health needs and uninterrupted treatment during this transition from childhood to adolescent (EGPAF, 2016).

According to Guttmacher institute, a report focused on adolescents in 4 countries, Burkina Faso, Ghana, Malawi and Uganda estimated 4.3% of women aged 15-24 in Sub Saharan Africa are living with HIV, compared to 1.5% of men in the same age group. In some countries the rates are much higher 15% or more of young women in Botswana, South Africa, Swaziland and Zimbabwe are living with HIV. Its little wonder that the Joint United Nations Program on HIV/ AIDS (UNAIDS) considers 15-24 years old to be the age group most threatened by AIDS and at the Centre of HIV vulnerability.

The cycle of new infections among adolescent girls and young people is increasing. According to the Joint United Nations Program on HIV and AIDS (UNAIDS) 2014 research, nearly half of all adolescents living with HIV are in African region.

In Eastern and South Africa, 74% of new infections among adolescents are among girls aged 15-19 and AIDS related illnesses are the leading cause of death among women of reproductive age.

Incidences of HIV pregnancy among adolescents in Africa remain high in South Africa. HIV prevalence among young women aged 15-19 is 6% and 21.1% in the age range of 20-24 (Kerrissey, 2008).

Interventions here aim at improving health related quality of life by increasing disclosure, adherence and risk reduction for onward HIV transmission. Problem has been that strategies in place have been aiming at preventing adolescents from acquiring HIV rather than addressing the experiences of adolescents living with HIV.As a result many adolescents living HIV lack access to support that is tailored to their unique and complex needs (Kerrissey, 2008).

1.1 Theoretical Perspective

Some of these theories state that most of these adolescents have trouble transitioning from childhood to adolescent. It is also said that most of the interventions aim at helping adolescents who are already HIV positive, and less attention is given to the adolescents who are HIV negative. In that there are very few interventions put in place to help protect the HIV negative adolescents from acquiring Human Immune deficiency virus. It is also said that most of these adolescents are not adherent on their medications. Lastly there is also a theory of failure to disclose to these children about their HIV sero status affects their adherence and hence many of them end up with unsuppressed viral loads.

1.2 Conceptual Perspective

HIV prevalence is almost four times higher among young women aged 15 to 24 than young men of the same age. The issue faced by this demographic include gender-based violence (including sexual abuse) and a lack of access to education, health services, social protection, and information about how they cope with these inequalities and injustices. Indeed, young Ugandan women who have experienced intimate partner violence are 50% more likely to have acquired HIV than women who had not experienced violence (Kerrissey, 2008).

1.3 Contextual Perspective

The increase in the number of adolescents with unsuppressed viral loads in Kiryandongo has been linked to a number of problems like not having adult care takers, poor adherence to ART, not having any one reminding them to take their drugs, some its due to failure of disclosure resulting in some refusing to take medications since they were not told the exact reason as to why they have to take their drugs (KDH HIV Care/ART Card, 2014).

1.4 Problem Statement

There is an increasing burden of HIV in adolescents and most of them are put on ART to improve their quality of life. However there is an emerging challenge of virological failure in these adolescents .The risk factors for virological failure are not well documented in a rural source ART clinic. This study therefore will document the prevalence and risk factors associated with unsuppressed viral load.

1.5 General Objective

The study sought to find out how many HIV positive adolescents have unsuppressed viral loads in Kiryandongo Hospital Uganda, and the factors associated with the unsuppressed viral loads in these adolescents.

1.5.1 Specific Objectives

i. To determine the prevalence of HIV positive adolescents attending HIV clinic with unsuppressed viral loads from August 2014 to December 2017 in Kiryandongo Hospital.
ii. To find out which factors are associated with unsuppressed viral loads among HIV positive adolescents attending HIV clinic from August 2014 to December 2017.

1.6 Research Questions

i. How many HIV positive adolescents attending HIV clinic have unsuppressed viral loads from August 2014 to December 2017.
ii. Which factors are associated with unsuppressed viral loads among HIV positive adolescents attending HIV clinic from August 2014 to December 2017 in Kiryandongo Hospital?

1.7 Significance of the Study

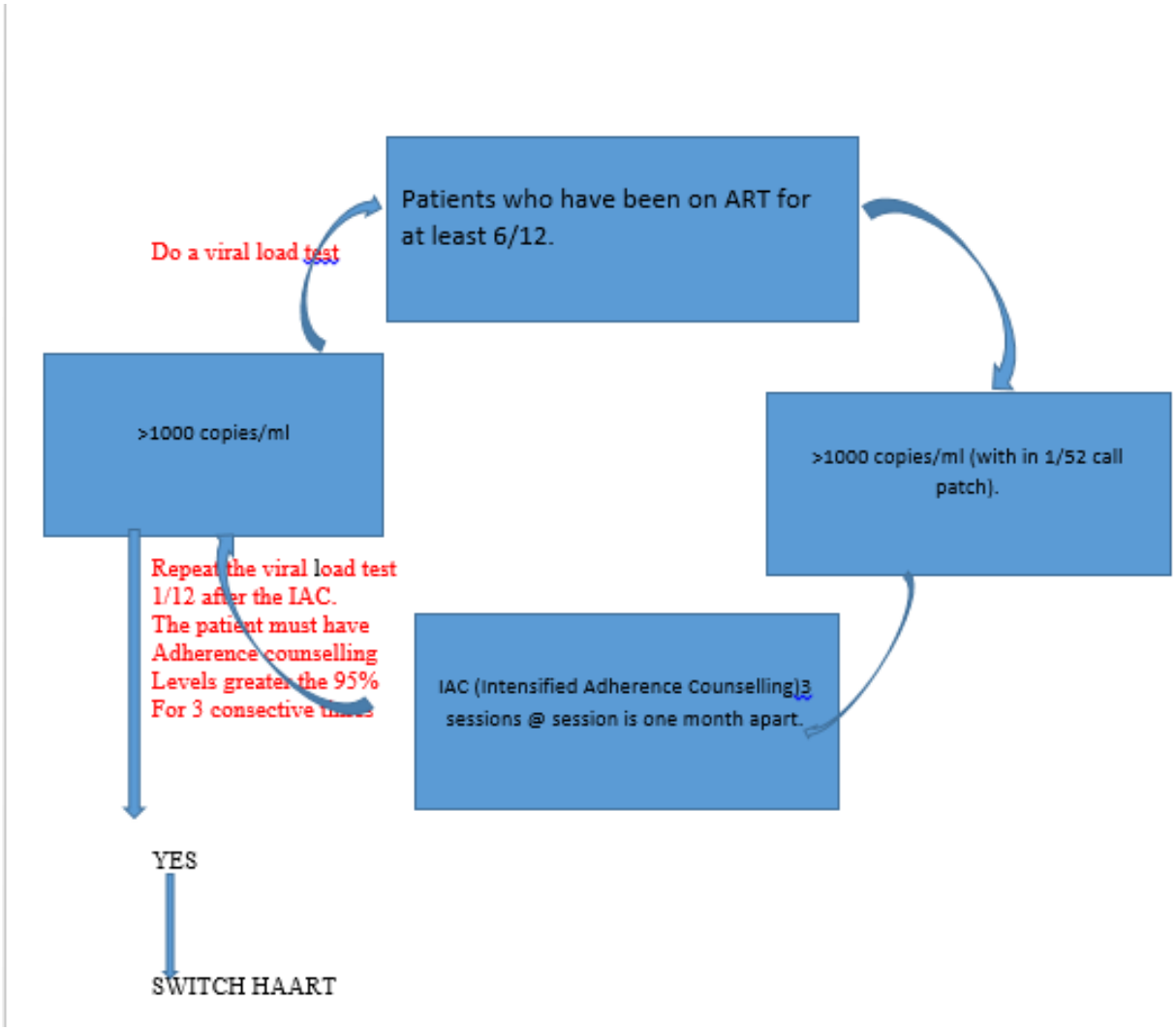
This study is hoped to help the government of Uganda, local government of Kiryandongo and other key players in maintaining good health, to appreciate the key challenges facing HIV care provision among adolescents and therefore come up with better outcomes.

The study will also enable health workers to know some of the reasons behind the unsuppressed viral loads in HIV positive adolescents and hence help them manage HIV better in adolescents.

The research will generate knowledge which will be useful to academicians and researchers who are interested in HIV care for adolescents and possible care for the HIV infection in the general population.

1.8 Conceptual Framework

STANDARD VIRAL LOAD ALGORITHM



1.9 Scope of Study

The study focused on HIV care among HIV positive adolescents in Kiryandongo Hospital, Uganda from August 2014 to December 2017. It looked at the prevalence of HIV positive

adolescents with unsuppressed viral load and the possible factors that could have been behind the unsuppressed viral load in these adolescents.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter contains literature review about virological failure, the different causes of virological failure, the various factors responsible for virological failure, barriers to disclosure and adherence and facilitators to help in disclosure and drug adherence from other scholars.

2.1 HIV Virological Failure

This is defined as a type of treatment failure which occurs when antiretroviral therapy (ART) fails to suppress and sustain a person's viral load to less than 200 copies/ml. Virological failure can occur because of many reasons. Data from patient cohorts in the earlier era of combination ART suggested that young age, male gender, active TB, suboptimal adherence and drug intolerance / toxicity are key contributors to virological failure and regime discontinuations (Kerrissey, 2008). The presence of existing (transmitted) drug resistance may lead to virological failure. Virological failure may be different in various patients and is highly associated with adherence, HIV and ART regime related factors as below:

2.1.1 Patient Adherence-Related Factors:

- Comorbidities that may affect adherence (e.g., active substance abuse, mental health disorders, neurocognitive impairment).
- Unstable housing and other psychosocial factors.
- Missed clinical appointments and interruption of intermittent access to ART.
- Cost and affordability of ARVs (i.e., may affect ability to access or continue therapy)
- High pill burden and/or dosing frequency coupled with drug adverse effects.
- Confidentiality about HIV status.

2.1.2 HIV-Related Factors

These include:

- Presence of transmitted or acquired drug-resistant virus strains as documented by current or past resistance testing.
- Prior HIV treatment failure.
- Innate resistance to ARVs based on tropism or the presence of HIV-2 infection/co-infection in the patient.

- Higher pretreatment HIV RNA level (some regimes may be less effective).

2.1.3 ARV Regime-Related Factors

- Suboptimal pharmacokinetics of the drugs (variable absorption, distribution, metabolism, or possible penetration into reservoirs).
- Suboptimal virologic potency of the ART regimen.
- The patient's low genetic barrier to resistance.
- Reduced efficacy due to prior exposure to suboptimal regimes (e.g., monotherapy, dual-nucleoside therapy, or the sequential introduction of drugs).
- The excessive demand for food during treatment.
- Adverse drug-drug interactions with concomitant medications.
- Prescription errors that may result in low serum ART regimen resulting into resistance.

2.2 Adherence to Anti- Retro Viral Drugs

Adherence means taking medicine consistently and as prescribed by a health care provider for at least 95% of the time. Non- adherence refers to the failure to take medication consistently and correctly, and it can include missing one or multiple doses and not observing dietary instructions. The consequences of non- adherence to ARVs are serious and sometimes fatal. These include incomplete viral suppression, continued destruction of the immune system, disease progression, increased side effects and development of resistant restrains of HIV. In this sense, non-adherence to ARVs represents a hazard to the individual health of the person living with HIV as well as the health of the general public (Friedland, 1997).

Some of the reasons of non-adherence to ARVs are lack of transport to reach the facility for re-supply, waiting long time at the facility, lack of enough food, stigma associated with HIV infection, lack of social support, difficult drug regimens, treatment fatigue and poor service delivery by health workers (Nakiyemba, 2005).

2.2.1 Barriers to Nonadherence to ART

Non- disclosure to adolescents: When adolescents are not aware of their HIV status, forcing them to take drugs has been found difficult. This may be because the adolescents do not understand the drugs benefits to their health or feel resentment toward the caregivers for making them swallow so many pills without explaining to them (Bikaako-Kajura *et al*, 2006).

Non- disclosure to others: Adolescents who have not disclosed their HIV status are more likely not to adhere to their drugs. Across-sectional study of 170 children, age 2-18 receiving ART at

Mulago Hospital found that when the primary caregiver was the only one who knew the child`s sero status, the child was three times more likely to be non-adherent (Nabukeera *et al*,2007).

Poverty and stigma: Bikaako-Kajura *et al* (2006) noted that, even when there is full disclosure, poverty and stigma are barriers to adherence among youth living with HIV in Uganda.

High pill burden: In FGD`s, caregivers expressed that 5 pills were simply too many for the children to take (Musisi, 2007).

Location: An adolescent who lives far from the health service point is more likely not to return for services, including ART. Loss of follow up among children and adolescents at Mulago Hospital was high (44%) and was especially common among those who lived far away and/or were healthier (Bagambe *et al*, 2008).

Substance Abuse: Numerous studies in the US have demonstrated that adherence to any drug is reduced by substance abuse (Lightfoot *et al*, May 2007).

2.2.2 Facilitators to Help Improve ARV Adherence

Peer groups: Numerous studies have shown peer groups to effectively increase adherence among adolescents to ART. In Uganda, a recent study at JCRC demonstrated that adolescent peer support groups improve adherence to ART and reduce self-stigma among HIV infected youth. This group aimed that adolescents living with HIV aged 10-19 meet monthly on Saturdays to discuss health and SRH education, discussions of peer pressure, growth and development and self-esteem, along with games and music. Ongoing one to one counseling is also available. The study documented improved adherence among adolescents attending these sessions (Musiime *et al*, 2007).

Disclosure: Primary caregivers who disclose the child`s status to at least one other person is more likely to foster good adherence (Nabukeera et al, 2007).

Empowering and allowing adolescents control over adherence: More than one study has documented a desire among adolescents to take their pills themselves (Musisi, 2007).

Strong parental and or caregiver relationship: In-depth interviews with 42 HIV-positive children and their caregivers in Uganda found that strong parental relationship was related to good adherence (Bikaako- Kajura *et al*, 2006).

Support from health care providers: Positive relationships with health care providers and counselors seem to be very effective in improving adherence and general quality of life for

adolescents living with HIV; for instance, this support is described as making adolescents feel "loved and of worth" (Musisi, 2007).

Motivation to avoid further hospital admissions: At Mulago Hospital, Nabukeera- Birungi also found that children who had been hospitalized twice or more before starting HAART were more likely to adhere (Nabukeera *et al*, 2007).

Providing youth-friendly services: A needs assessment among adolescents in Kampala found that 92% of the adolescents interviewed desired a separate clinic from the pediatric or adult clinics (Bakeera-Kitaka, 2006).

2.3 Disclosure of HIV Status

Disclosure refers to the act of informing others about the sero- status of a person with HIV. In Uganda, the overall rate of disclosure is low, at 8% (UHSBS, 2005). Disclosure rates among adolescents living with HIV are low as well. An example in TASO Uganda/population council study found over 60% adolescents in relationships had not disclosed their status to their current partners, and almost 40% of these adolescents were in a relationship with HIV-negative partners (Birungi *et al*, 2007). In some cases, non-disclosure regarding adolescents also refers to a caregivers non-disclosure to an HIV-infected youth about his/her own status. Other times, non-disclosure among adolescents refers to individual's lack of disclosure of his/ her own status. Disclosure plays a crucial part to adherence and positive prevention (Bakeera- Kitaka, 2006).

Among adolescents who knew their HIV status, fears surrounding disclosure are high, and few disclose to more than 1 or 2 people. FGD`s in Uganda found that most adolescents do not disclose outside of their family, and even within the family, the disclosure is limited to one or two trusted members. Friends seem not to be trusted for disclosure due to fears of gossip (Musisi, 2007).

2.3.1 Barriers to Disclosure of HIV Status

Stigma: Most commonly cited for non-disclosure among adolescents is stigma. Adolescents report fearing the "pointing of fingers" by other people especially in the school environment. Stigma in schools is serious, and it is perpetuated by fellow students and teachers alike (Musisi, 2007).

Fear of rejection from parents: Some adolescents fear to disclose their HIV status to their parents or guardians because they fear punishments or loss of love (Bakeera-Kitaka, 2006).

Fear of rejection from partners: This fear is cited in many FGD`s and interviews with HIV-infected adolescents (Bakeera- Kitaka, 2006).

Lack of confidentiality: Many adolescents fear that if they tell one person their status then rumors will spread and the entire social group, school or community will know (Bakeera- Kitaka, 2006).

2.3.2 Facilitators to Disclosure of HIV Status

Peer groups: At JCRC, some caretakers have found peer groups as a helpful medium for disclosure to adolescents who do not know their HIV status. Five out of 130 enrolled adolescents had their status disclosed to them during meetings with their peers (Musiime *et al*, 2007).

Supported disclosure: Assistance from a trained counselor can ease disclosure both for parents disclosing to their children and adolescents disclosing to others (Bakeera- Kitaka, 2006).

2.4 Conclusions from Literature

Full disclosure to adolescents living with HIV is an essential part of adherence and positive prevention. Adolescents adhere better when they are given responsibility for taking their medication (with routine pill counts and checks). Adherence is easier for adolescents when pill burden is reduced through combined tablets.

Most adolescents receive treatment, care, and support through pediatric care clinics and are often treated as children. Support, particularly counseling for children does not adequately cover challenges of disclosure, adherence and sexuality experienced by adolescents living with HIV.

Counseling and other interventions may be more effective when they are tailored to address the specific needs of adolescents in the interim between pediatric and adult care.

Programs addressing adolescents living with HIV are more effective when they involve adolescents living with HIV in their design and implementation.

CHAPTER THREE

STUDY METHODOLOGY

3.0 Introduction

This section includes the research design, area of study, study population, sample size, sampling procedures, data collection methods, ethical considerations and data management and analysis. It also includes limitations and challenges met during the study.

3.1 Research Design

This was a case study design that retrospectively obtained quantitative and qualitative data from HIV Care/ART cards of HIV infected adolescents getting treatment in the hospital. Also interviews with health care providers was done to find out some of the reasons why some HIV infected adolescents had unsuppressed viral loads despite being on anti-retro viral treatment.

3.2 Study Area

The study was carried at Kiryandongo General Hospital, located in the mid-western Uganda on $01^{0}52'46.0"N$, $32^{0}03'43.0"E$ (Latitude:1.879439;Longitude:32.061950). It is approximately 225 kilometers by road north-west of Kampala, Uganda's capital city and approximately 211 kilometers north of Mulago National Referral Hospital, the largest hospital in the country.

Kiryandongo Hospital is a government owned hospital with a status of a district hospital. It has a projected population of 400,000 people with a service area covering the areas of Kiryandongo, Masindi, Nakasongola, Oyam, Apac, Amuru and Nwoya Districts. It has a bed capacity of 109 beds with an approximated annual budget of 158 million shillings. It was constructed because of its proximity to the Kampala-Gulu highway and there were no any other hospitals in the area.

The services offered by the hospital include: Health promotion and education, dental health, Eye clinic, X-ray and Ultra sound, Orthopedics, Occupation Therapy, ART, PMTCT, VCT, EPI, Diabetic and Environmental Health. Kiryandongo district hospital has four major wards which include: Maternity ward, Female ward, Male ward and Pediatric ward.

3.3 Study Population

This consisted of HIV positive adolescents attending HIV clinic in Kiryandongo district hospital.

3.4 Sample Size

The sample size was limited to records of 40 HIV positive adolescents attending HIV clinic in Kiryandongo. This was due to time and financial limitations.

3.5 Sampling Method

The sampling was by random systematic sampling method using hospital records from the HIV Care/ART card for HIV positive adolescents. Interviews with health workers with experience and in-depth knowledge and actively participated in HIV-Care in adolescents in the hospital was done.

3.6 Data Collection

Data was collected by accessing records from Kiryandongo hospital HIV/ART clinic and raw data collected from the HIV Care /ART card of the adolescents.

3.7 Data Collection Procedures

Data collection was by filling in the patient's details on a printed questionnaire paper.

3.8 Data Analysis and Presentation

The questionnaires were analyzed using Microsoft Excel windows 10 and the information presented in form of pie charts and graphs.

3.9 Ethical Considerations

An introductory letter was obtained from the office of the Dean Faculty of Clinical Medicine and Dentistry of Kampala International University administration and permission to carry out the research was sought from the medical superintendent of Kiryandongo General Hospital.

Patients' confidentiality and privacy was maintained. Not forgetting to ensure that patients are not psychologically hurt by my research. Data was kept under lock and key and no general public able to access my data.

In addition, no name was used on the question paper.

3.10 Limitations of Study

This study was limited by a short period of time and finance.

CHAPTER FOUR

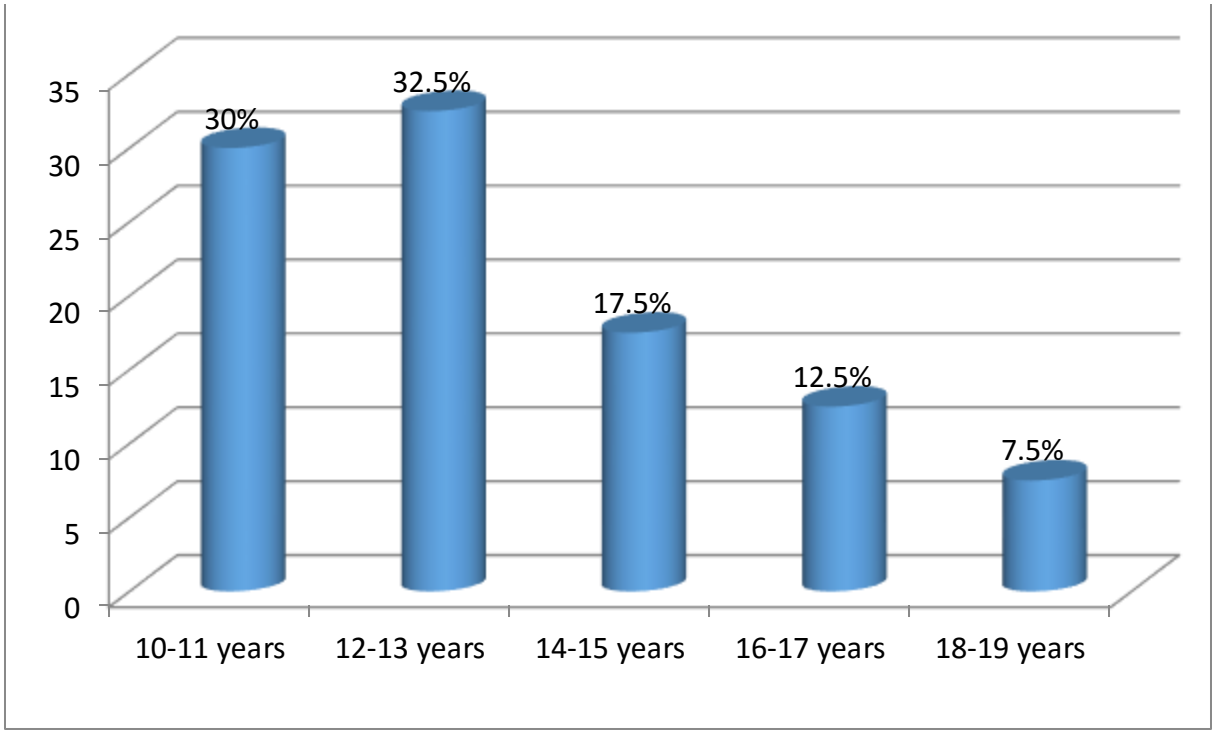
RESULTS OF THE STUDY

4.0 Introduction

In this chapter, the results of the study 'The *Prevalence and Factors Associated with Unsuppressed Viral Loads among Adolescents Attending HIV Clinic in Kiryandongo Hospital, Kiryandongo District, Uganda'* is presented in form of tables, pie charts and bar graphs, followed by a brief description of the presentation.

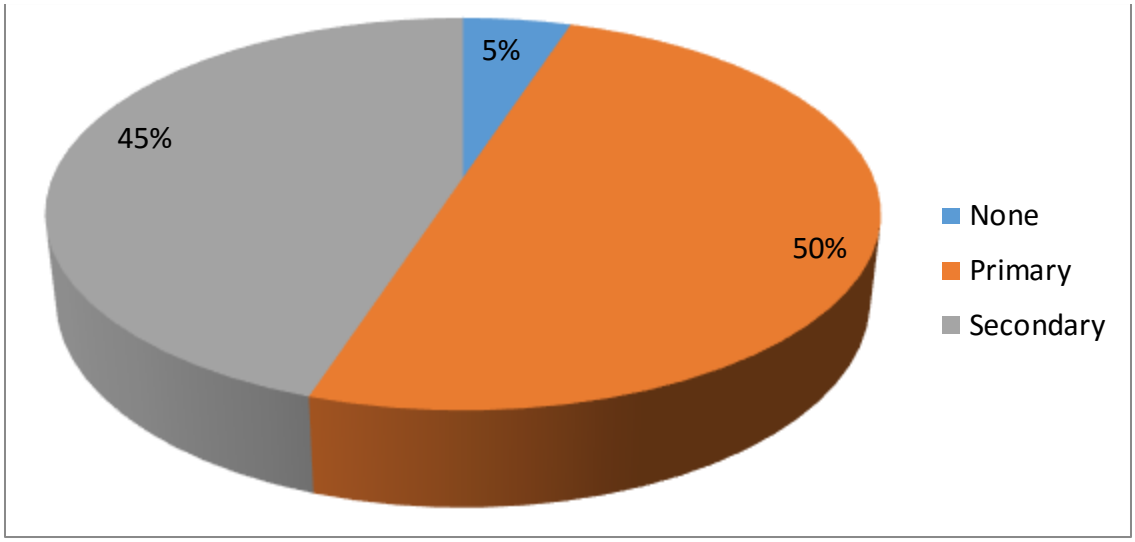
4.1 Socio-demographic Characteristics of Respondents

Figure 1: Bar Chart Showing the Age of Respondents



From the bar graph in figure 1 above, a majority of the respondents' records shows that the adolescents attending ART clinic at Kiryandongo General Hospital were within a range of 10 to 13 years (62.5%), and the remaining 37.5% of them were between 14-19 years. This shows that most of the adolescents are in their early teen age years.

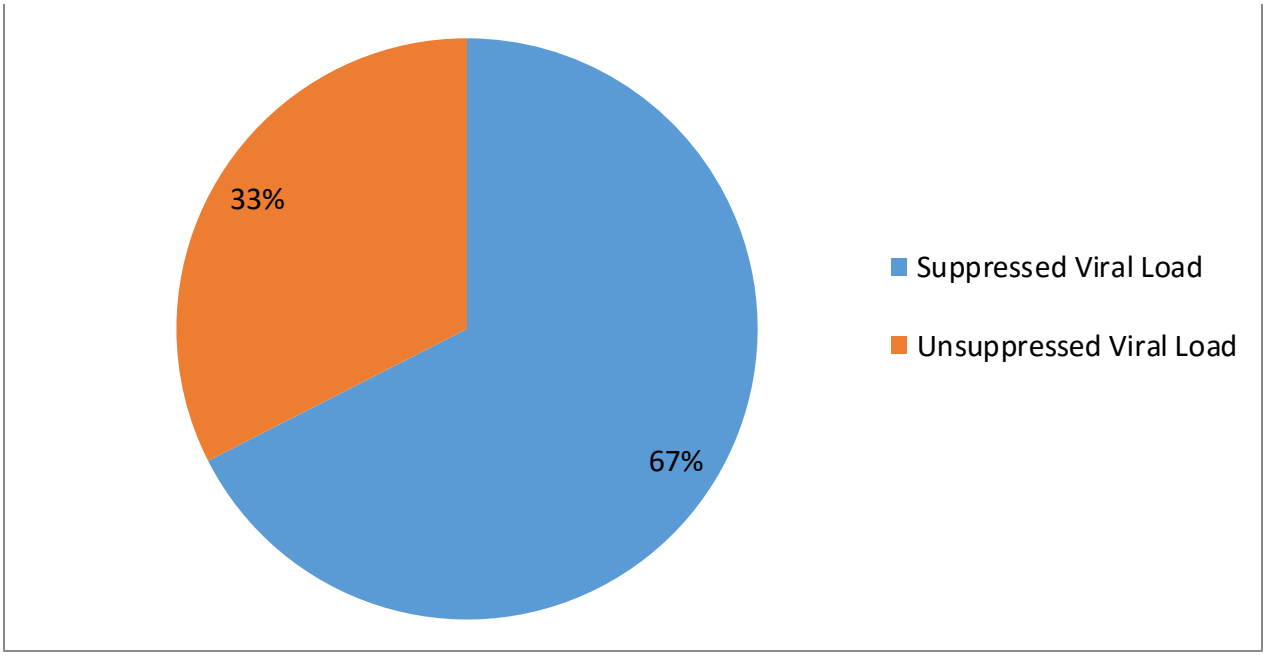
Figure 2: Pie Chart Showing the Educational Level of Respondent



From figure 2 above, most of the respondents were in primary education (50%), followed by secondary (45%) and lastly no education at all at only 5%.

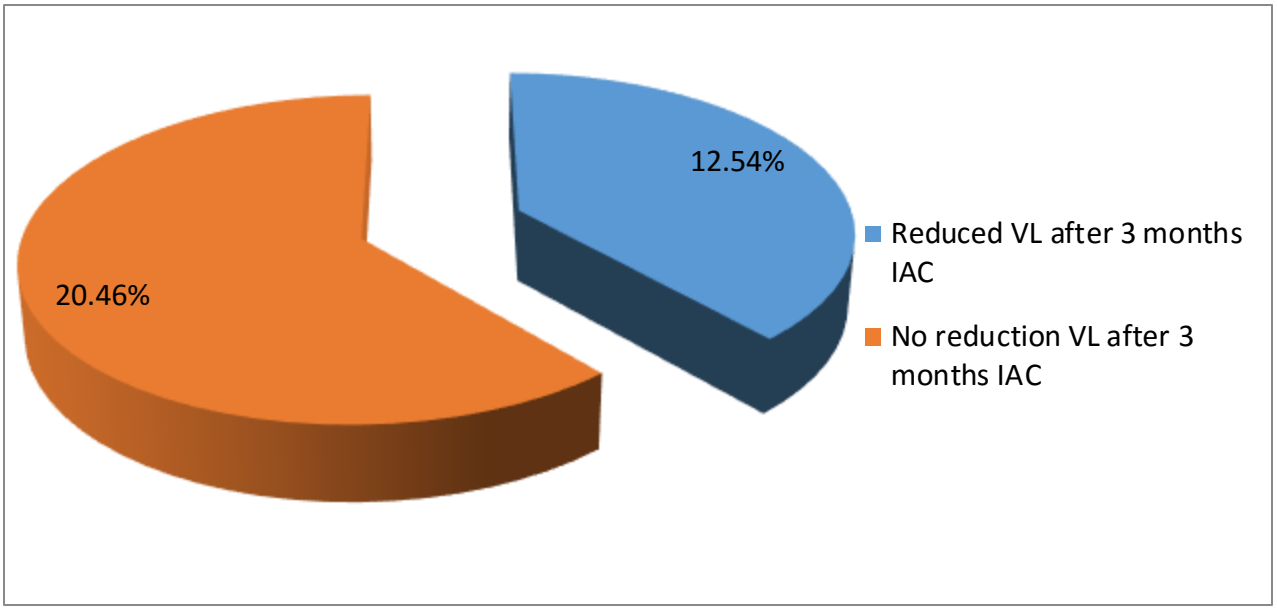
4.2 Viral Load Suppression

Figure 3: Suppression of Viral Load among Respondents



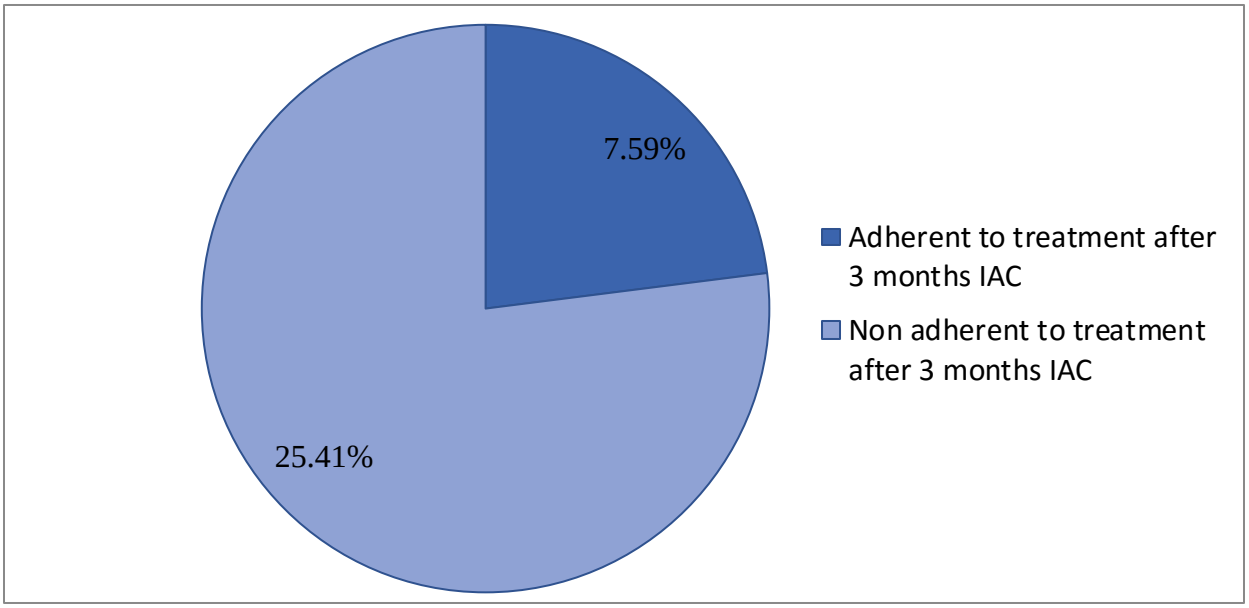
From the pie chart in figure 3 above, up to 67% of the respondents had their viral load suppressed from treatment while the remaining 33% had unsuppressed viral load.

Figure 4: Suppression/Reduction in Viral Load after 3 Months IAC



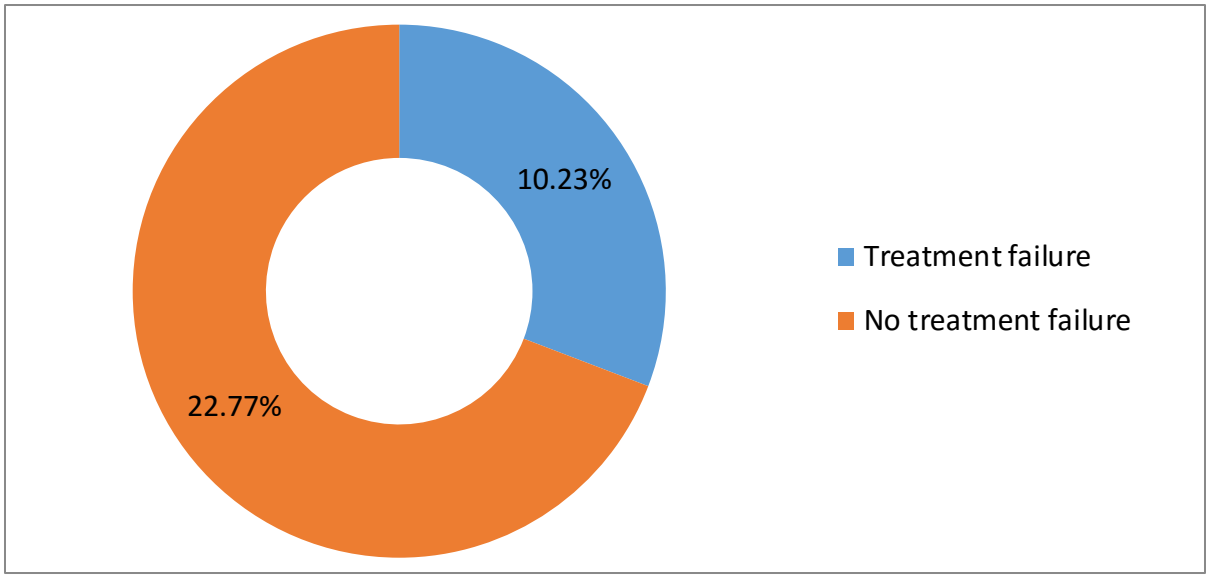
Of the 33% who had unsuppressed viral load in figure 3 above, a small percentage (12.54%) had their viral load reduced after IAC of 3 months. The bigger percentage (20.46%) had no viral load reduction after IAC.

Figure 5: Adherence to ART after 3 months of IAC



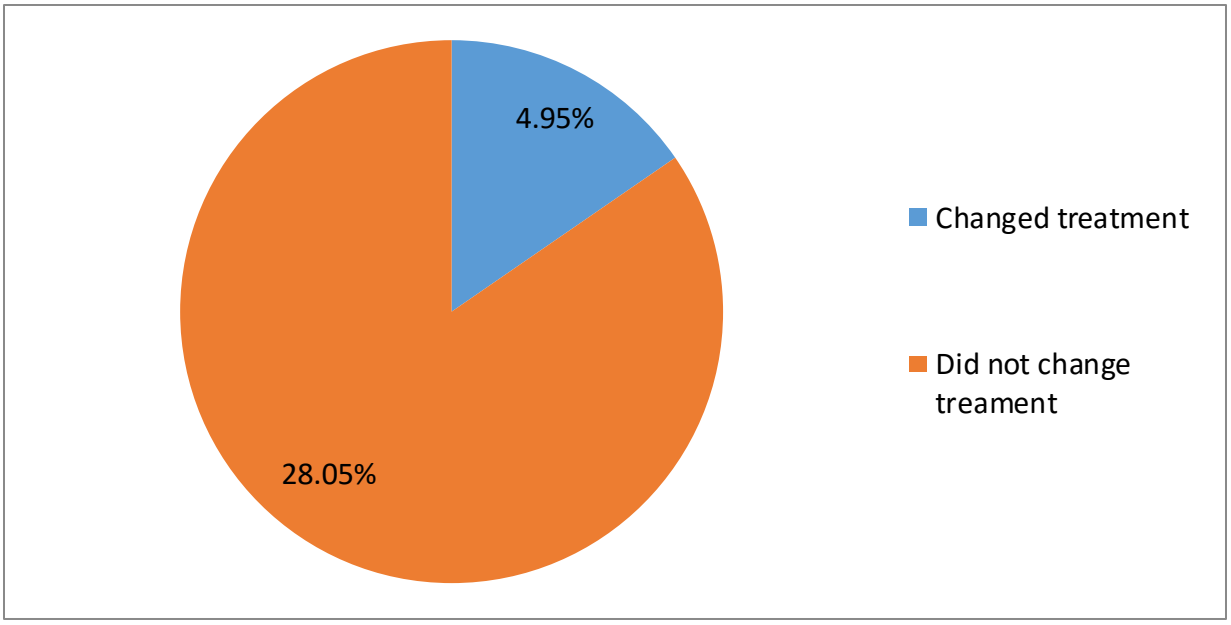
Of the 33% with unsuppressed viral load, a majority (25.41%) remained non adherent even after 3 months IAC. Only 7.59% of them were adherent after IAC.

Figure 6: Unsuppressed Viral Load due to Treatment Failure



Among the 33% of respondents with unsuppressed viral load, 10.23% reported treatment failure while 22.77% did not attribute to treatment failure.

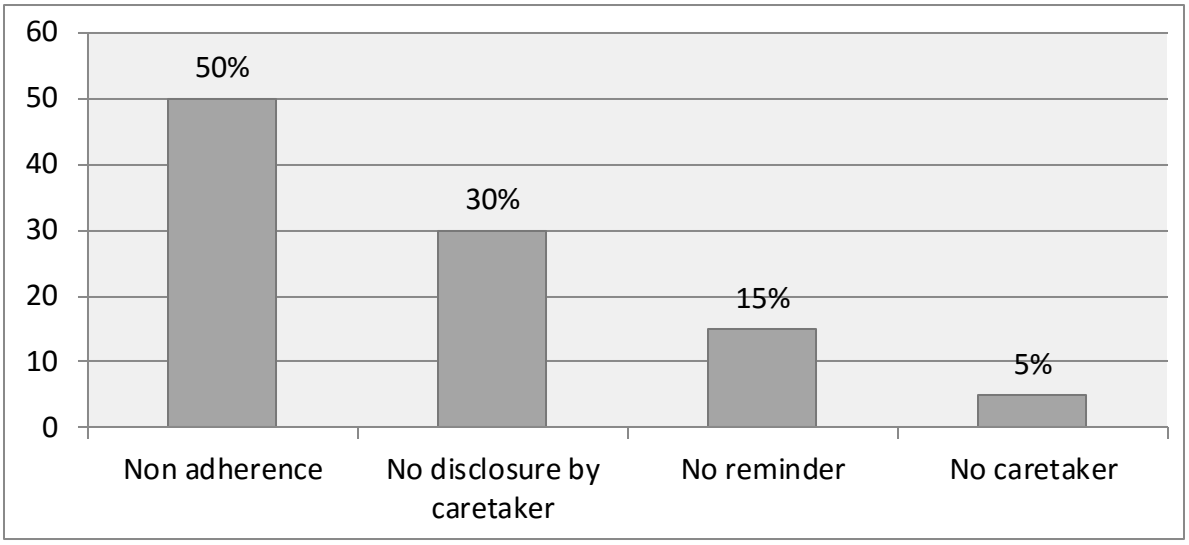
Figure 7: Change of Treatment after Treatment Failure



Of the 33% of respondents who had no viral load suppression after 3 months of Intensive Adherence Counseling (IAC), up to 28.05% did not change treatment and only 4.95% had changed treatment to the second line ART therap.

4.3 Reasons for Failed Viral Load Suppression

Figure 8: Bar graph showing reasons for failed viral load suppression



Up to 50% of the respondents had failed viral load suppression due to non-adherence to ART. Another 30% was due to non-disclosure by the care taker and 15% did not have anyone to remind them to take their ARVs while 5% had no care takers.

CHAPTER FIVE

DISCUSSION OF RESULTS

5.0 Introduction

In this chapter, the results of the study *'The Prevalence and Factors Associated with Unsuppressed Viral Loads among Adolescents Attending HIV Clinic in Kiryandongo Hospital, Kiryandongo District, Uganda'* are discussed in details by comparing and contrasting with the findings of other scholars.

5.1 Socio-demographic Characteristics

The majority of the respondents (62.5%) were within a range of 10 to 13 years, while the remainder were between 14-19 years. Half of these respondents had also attended or completed primary education, followed by secondary that made up 45%. This study therefore shows that participants to the study were in early teen years and up to 95% of the respondents had some form of formal education levels.

5.2 Viral Load Suppression

Up to 67% (three quarters) of the respondents had their viral load suppressed from treatment with ART while the remaining 33% had unsuppressed viral load. And of these 33% with unsuppressed viral load, a small percentage (12.5%) had their viral load suppressed/reduced after Intensive Adherence Counseling of 3 months while the bigger percentage (20.5%) had no viral load suppression/reduction even after IAC. These unsuppressed/unreduced viral load was attributable to non-adherence (25.4%) even after 3 months of IAC and 10.2% due to treatment failure.

According to Friedland (1997), adherence means taking medicine consistently and as prescribed by a health care provider for at least 95% of the time. Non- adherence refers to the failure to take medication consistently and correctly, and it can include missing one or multiple doses and not observing dietary instructions. The consequences of non- adherence to ARVs are serious and sometimes fatal. These include incomplete viral suppression, continued destruction of the immune system, disease progression, increased side effects and development of resistant restrains of HIV. In this sense, non-adherence to ARVs represents a hazard to the individual health of the person living with HIV as well as the health of the general public.

In this study, non-adherence to treatment was about 25% and resulted in non-suppression of viral load in about 33% of the patients.

Of the 33% of respondents who had no viral load suppression after 3 months of IAC, up to 28% did not change treatment to the second line and only 5% had changed treatment to the second line.

5.3 Reasons for Failed Viral Load Suppression

Up to 50% of the respondents had failed viral load suppression due to non-adherence to ART. Another 30% was due to non-disclosure by the care taker and 15% did not have anyone to remind them to take their ARVs while 5% had no care takers.

According to Nakiyemba (2005) some of the reasons of non-adherence to ARVs are lack of transport to reach the facility for re-supply, waiting long time at the facility, lack of enough food, stigma associated with HIV infection, lack of social support, difficult drug regimens, treatment fatigue and poor service delivery by health workers. This agrees with the study where 5% of the respondents had no care takers.

When adolescents are not aware of their HIV status, forcing them to take drugs has been found difficult. This may be because the adolescents do not understand the drugs benefits to their health or feel resentment toward the caregivers for making them swallow so many pills without explaining to them (Bikaako-Kajura *et al*, 2006). Adolescents who have not disclosed their HIV status are more likely not to adhere to their drugs. Across-sectional study of 170 children, age 2-18 receiving ART at Mulago Hospital found that when the primary caregiver was the only one who knew the child`s sero status, the child was three times more likely to be non-adherent (Nabukeera *et al*,2007).

This also agrees with this study finding where up to 30% of the patients' HIV status was not disclosed to these adolescents.

Bikaako-Kajura *et al* (2006) noted that, even when there is full disclosure, poverty and stigma are barriers to adherence among youth living with HIV in Uganda. In this study, no attempt was made to investigate the relationship between poverty and stigma to the adherence to treatment.

Other reasons for non-adherence according Musisi, (2007) was high pill burden where in **FGDs**, caregivers expressed that 5 pills were simply too many for the children to take).

Bagambe *et al*, (2008) asserts that an adolescent who lives far from the health service point is more likely not to return for services, including ART. Loss of follow up among children and adolescents at Mulago Hospital was high (44%) and was especially common among those who lived far away and/or were healthier.

Numerous studies in the US have demonstrated that adherence to any drug is reduced by substance abuse (Lightfoot *et al*, May 2007).

In this study, the other factors contributing to non-adherence were lack of reminders and no care takers which is no elaborated by other scholars in our literature.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

In this chapter, the results of the study *'The Prevalence and Factors Associated with Unsuppressed Viral Loads among Adolescents Attending HIV Clinic in Kiryandongo Hospital, Kiryandongo District, Uganda'* are concluded and recommendations made accordingly.

6.1 Conclusions

The majority of the respondents (62.5%) were within a range of 10 to 13 years, and 95% of these respondents had attended or completed primary education and secondary. This study therefore shows that participants to the study were in early teen years and up to 95% of the respondents had some form of formal education levels.

Three quarters of the respondents had their viral load suppressed from treatment with ART while the remaining 33% had unsuppressed viral load. And of these 33% with unsuppressed viral load, 12.5% had their viral load suppressed after Intensive Adherence Counseling of 3 months while 20.5% had no viral load suppression even after IAC.

The unsuppressed viral load was attributable to non-adherence (25.4%) even after 3 months of IAC and 10.2% to treatment failure.

In this study, non-adherence to treatment was about 25% and resulted in non-suppression of viral load in about 33% of the patients. Of the 33% of respondents who had no viral load suppression after 3 months of IAC, up to 28% did not change treatment to the second line and only 5% had changed treatment to the second line.

Up to 50% of the respondents had failed viral load suppression due to non-adherence to ART. Another 30% was due to non-disclosure by the care taker and 15% did not have anyone to remind them to take their ARVs while 5% had no care takers.

In this study, the other factors contributing to non-adherence were lack of reminders and not having caretakers.

6.2 Recommendations

The following recommendations are thus suggested from this study:

- Parents/guardians should be directly involved in ensuring that the wellbeing of their children/adolescents by accompanying them during refills, timely and regular taking of ART.
- Parents/guardians of HIV positive children should ensure that the sero-status of such children are disclosed to them as early as possible.
- Parents/guardians of HIV positive children should ensure that they disclose the sero-status of such children to another caring close family member such that if the parent/guardian is not around this family member is able to guide, remind and monitor the child to take ART.
- The hospital HIV health providers, counselors and community volunteers should engage the parents/guardians and these children in FGDs, identify their problems and challenges and try find and or address these problems or challenges.
- Parents/guardians of HIV positive children should be counseled and sensitized about good nutrition and the side effect of ART.

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APPENDICES

Appendix I: Introductory Letter

KAMPALA INTERNATIONAL UNIVERSITY – WESTERN CAMPUS

EXPLORING THE HEIGHTS

P O BOX 71, ISHAKA UGANDA
Tel: +256 200923534
www.kiu.ac.ug

OFFICE OF THE DEAN
FACULTY OF CLINICAL MEDICINE & DENTISTRY

01/03/2018

MEDICAL SUPERINTENDENT
Kiryandongo Hospital
25 APR 2019
P. O. Box 128, Kigumba

TO WHOM IT MAY CONCERN

RE: MULOWOZA CHRISTINE (BMS/0047/131/DU)

The above named person is a fifth year student at Kampala International University pursuing a Bachelor of Medicine, Bachelor of Surgery (MBChB) Programme.

She wishes to conduct her student research in your community.

Topic: HIV care among adolescents putting emphasis on why some HIV infected adolescents have unsupressed viral load despite being on ART in Kiryandongo hospital

Supervisor: Dr. Kayina Vincent

Any assistance given will be appreciated.

K.I.U TEACHING HOSPITAL
01 MAR 2018
W.Campus
PED/ASSOCIATE DEAN FCM&D

Dr. Akib Surat O
Assoc Dean FCM&D

Appendix II: Questionnaire

Topic: prevalence and factors associated with unsuppressed viral loads among adolescents attending HIV Clinic in Kiryandongo hospital, Uganda.

Serial no……..

1. Age (years); 10 -11…… 12 -13…….. 14 -15……. 16 -17…… 18 -19 ……

2. Level of education: none…….. Primary…….. Secondary…….

3. Has ever had unsuppressed viral load: Yes …… No …….

4. If yes**,** what were some of the reasons for the unsuppressed viral load?

……

5. Was Intensive Adherence Counselling (IAC) Done? Yes……. No…….

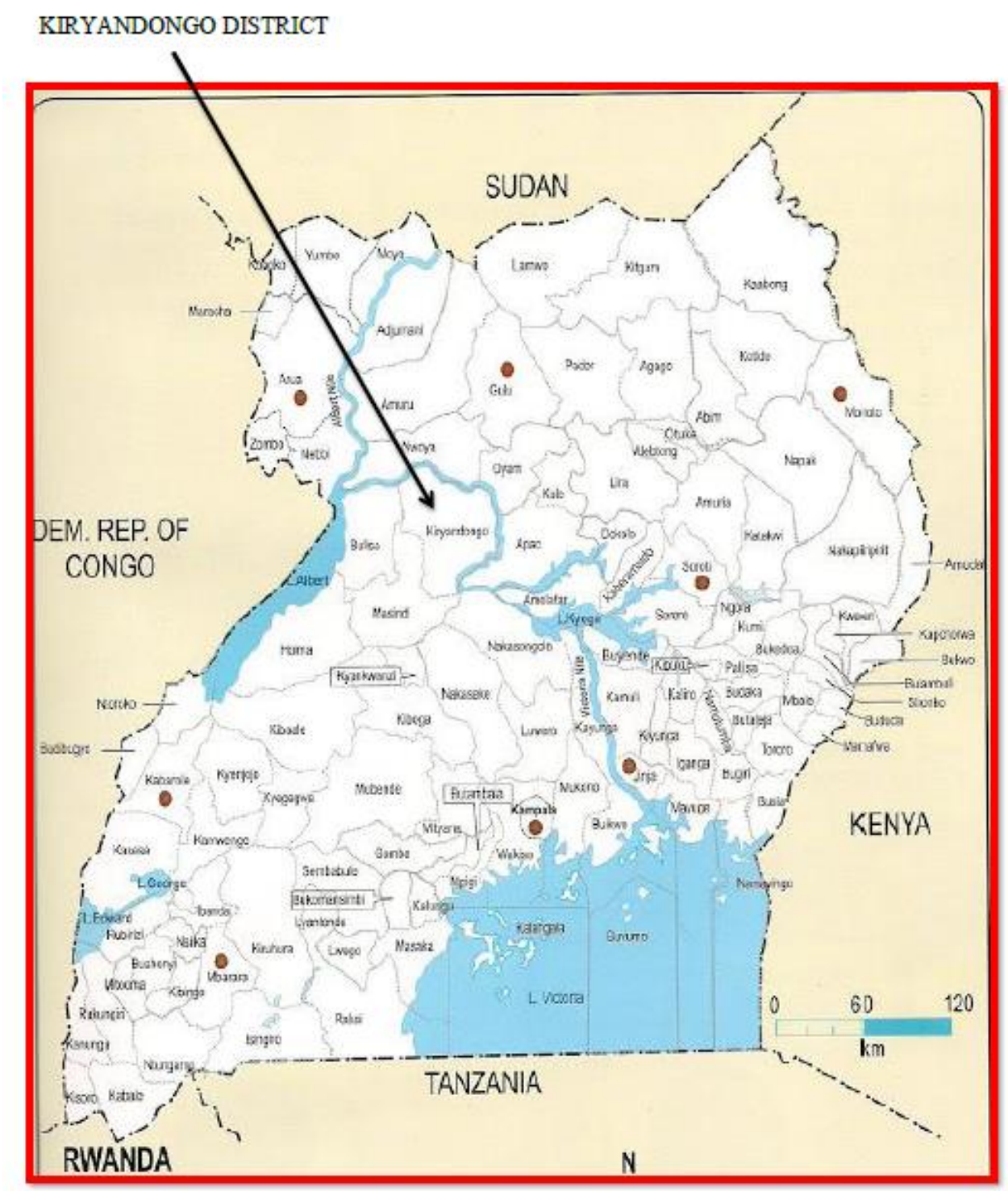
6. Was there a reduction in viral load after three months of IAC? Yes……. No……

7. Was She/he Adherent to Treatment after three Months of IAC? Yes…… No……

8. Was Treatment Changed From First Line To Second Line/Second Line To Third Line?

Yes ……. No …….

Appendix III: Map of Uganda Showing the Location of Kiryandongo



Appendix IV: Map of Kiryandongo and the Neighboring Regions



Appendix V: Research Work Plan 2017/2018

Name of person responsible	Activity	Oct 2017-Feb 2018	March 2018	April 2018
Mulowoza Christine	Proposal development and submission			
Mulowoza Christine	Data collection			
Mulowoza Christine	Sorting, tabulating, coding and analysis			
Mulowoza Christine	Data analysis and report writing			
Mulowoza Christine	Dissemination of Report findings			

Appendix VI: Research Budget

ITEM	QUANTITY	UNIT COST(Shs Ug)	AMOUNT
Papers	2 Reams	18,000	36,000
Pens	1 box	20,000	20,000
Secretarial services	Lump sum	200,000	200,000
Data analysis	Lump sum	100,000	100,000
Communication	Lump sum	50,000	50,000
Internet Services	Lump sum	50,000	50,000
Flash disk	2	30,000	60,000
Refreshments	2	30,000	60,000
TOTAL			**576,000**