

FACTORS AFFECTING RETENTION IN CARE AMONG HIV POSITIVE CHILDREN ATTENDING LONGISA COUNTY REFERRAL HOSPITAL, BOMET COUNTY, KENYA

¹STEPHEN KIPLANGAT CHERUIYOT, ²DR. MOSES M. M. OTIENO

Abstract: Diagnosing HIV positive children after screening for the eligibility and facilitating enrollment into care and initiation of lifelong anti-retroviral drugs is just the beginning. Supporting and sustaining the lifespan of these children requires lifelong tracking at the facility level, including age-disaggregate and sex appropriate support including drug, dietary changes as the child catch up with age. The study was conducted in Longisa county hospital which is the biggest facility in Bomet county and the study focused on children living with HIV below the age of 15 years old. The purpose of the study was to determine the factors influencing retention among HIV positives paediatrics in Longisa County Referral Hospital in Bomet, Kenya. Its core objectives included to determine how the demographics factors influencing retention rates among HIV positive paediatric in care and treatment e.g. age and gender, to assess how the type of caregiver influence retention among HIV positive paediatric retention in care and treatment and finally to explore how the HIV status of the caregiver influences HIV positive paediatric retention in care and treatment. Since the target population was not very big (320), a census was used. Primary data will be collected by use of the questionnaires with both open ended and closed ended questions which will be administered to the respondents in the selected institutions. The close-ended questions provide more structured responses to facilitate tangible recommendations. The open-ended questions provide additional information that might not have been captured in the close-ended questions. The questionnaires will be dropped to the selected institutions and collected after two days which will be considered enough time for the respondents to fill them in. The study will employ descriptive analysis technique on both primary and secondary data. In both cases, the study will use SPSS (Version 21) in the analysis and data output will be tabulated and on the secondary data, the study will apply Ordinary Least Squares (OLS). The study revealed that most of the respondents 170 (56.6%) either agreed or strongly agreed that the type of caregiver influenced HIV positive children in care and treatment. The study found that the majority of the respondents 165 (55%) either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. Considering the marital status of the caregivers, the study showed that 156 (52%) of the caregivers were single. They were either widows/widowers, divorced or were unmarried. The study found that the majority of the respondents 165 (55%) either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. The study recommends that there is need for a positive social support system that will encourage sharing of responsibility for remembering medication within households if optimum adherence level is to be attained.

Keywords: Retention in Care among HIV Positive Children.

LIST OF ABBREVIATIONS AND ACRONYMS:

ADHERENCE	- The fact of someone behaving exactly according to rules, beliefs
ART	-Anti-retroviral Therapy
CHBCM	- Community Home Based Care Model
DHIS	- District Health Information Systems
FBFCA	- Family Based Family Centered Approach
HIV	- Human Immuno-deficiency Virus
LTFU	-Lost To Follow Up
NGO	- Non- Governmental Organization
RETENTION	- Adherence to medications with continuous presentation with a health care provider whether with a single practitioner or with a clinic-based team
SPSS	- Statistical Package for Social Sciences
WHO	-World Health Organization
NASCOP	-National Aids and Sexually Transmitted Infection Control Programme
AIDS	-Acquired Immuno-deficiency Syndrome
CD4	-Cluster Differentiation
KAIS	-Kenya Aids Indicator Survey

1. INTRODUCTION

Background of the Study:

The HIV virus has presented huge challenges universally and Kenya is among the countries most affected by the epidemic. Significant scale up of HIV/AIDS services has been done in the past decade, especially in sub-Saharan Africa (SSA) where the epidemic is home to an estimated 25 million people representing around two-thirds of the people living with HIV globally (UNAIDS, 2014). In Kenya HIV prevalence is at 5.6% with 60.5% of those eligible taking ART. This means that close to 40% of HIV-infected persons in need of antiretroviral therapy (ART) were not receiving it at the time of the survey. Among those aware of their HIV infection and eligible for ART, coverage of ART was 84.5%. Still, 15.5% of persons who were aware of their infection and in need of ART were not receiving it (KAIS, 2012).

According to UNAIDS, (2012), there has been a dramatic change in the global HIV/AIDS landscape because of increased attention to care, treatment and support. At the end of 2014, it was estimated that 14.9 million people living with HIV had access to antiretroviral treatment globally, of which 13.5 million were receiving antiretroviral treatment (ART) in low- and middle-income countries (WHO, 2015). During the 2014 world AIDS conference, UNAIDS launched an initiative called the '90-90-90' initiative for 2020 with the prospective to end the pandemic by 2030 (UNAIDS, 2014). This means that 90% of all people living with HIV should know their HIV status, 90% of all people with diagnosed HIV infection should receive antiretroviral treatment and 90% of those on ART should be retained in care and virally suppressed.

Retention in HIV care starts from initial engagement in care, when a person with HIV is linked successfully to services, prepared for treatment, initiation of ART and adherence in lifelong ART. Pre-ART period has been identified as the time in which most patients are not retained in care, leading to poor performance, increased morbidity and mortality in HIV/AIDS program (Fox, 2010). Linkage to care after testing positive is not enough, as one needs to be retained into care in order to fully benefit from HIV services provided (WHO, 2011; Bofill, 2011).

Retention is significant in reducing HIV-related morbidity and mortality, incidence of new infections and development of ART resistance. And it provides additional benefits through ancillary services, social support, and secondary prevention messages that can help patients manage a chronic infection (NASCOP, 2011). Leading to marked decrease of HIV transmission thereby halting the HIV epidemic (Cohen, 2011)

International Journal of Novel Research in Humanity and Social Sciences

Vol. 5, Issue 4, pp: (290-306), Month: July - August 2018, Available at: www.noveltyjournals.com

Scale up of pediatric HIV care and treatment across sub-Saharan Africa (SSA), where over 90% of children living with HIV reside¹, has been substantial with more than 387,000 children reported as initiating antiretroviral therapy (ART) by December 2010 (WHO, UNAIDS, UNICEF 2010). Treatment responses of children on ART in resource-limited settings have been robust with high rates of viral suppression and immune reconstitution as well as improved survival (Olson et al 2007). However, the mortality rate of children on ART in resource-limited settings is considerably higher than the rate in developed countries, 8.0 versus 0.9 deaths per 100 child-years ($p < 0.001$) respectively ((Olson et al 2007). Reasons for this disparity include both biomedical and programmatic factors such as advanced disease at time of presentation, fragility of infants and younger children, other infectious co-morbidities and malnutrition, delays in ART initiation, and suboptimal retention in care (Rodriguez 2010)

Retention of HIV-infected children in care is essential for prevention of HIV-related morbidity and mortality through timely ART initiation, monitoring and management of disease progression and treatment failure, and provision of medications and supportive care. Pediatric programs in SSA report retention ranging from 77–89% at 12 and 24 months which may jeopardize long-term health outcomes (Rodriguez 2011). Both patient and programmatic factors influencing retention need to be identified to improve outcomes and inform future interventions.

Despite the efforts done to diagnose children through polymerase chain reaction and prompt linkage to children ART initiation, HIV positive adults on treatment is still double that of children. Significantly enhancing ART coverage require prompt identification of infants and children needing therapy, particularly those who missed to be issued prophylaxis offered in the PMTCT programme. Despite a near perfect and effective strategies being employed to diagnose these children, enrollment to key services and retention in ART treatment are key programme deliverable. With the new WHO treatment guidelines calling for test and start for HIV-infected persons, attention must be focused at every point where children are lost from care, with strong emphasis on HIV positive children retention in care and treatment.

Statement of the Problem:

Adherence to ART reinforced with optimal clinical and social support systems is critical pillars in the HIV cascade that are closely associated with optimal outcomes at individual and at the society. Despite the importance of ART retention a big percentage of evidence shows that sizeable clients struggle to adopt the recommended and age appropriate characteristics recommended by health-care professionals. This leads to increased morbidity and mortality through less than recommended viral load suppression rates, likelihood of drug resistance, and facilitates risk of HIV transmission; and more on a public health approach to higher health related costs and reduction in personal income. The prevalence of HIV among female in Bomet County is higher (8.2%) than that of males (4.9%). For a long period the women living in t Bomet have been more vulnerable to HIV infection than the men. Longisa County Hospital being the largest facility in the county will be ideal because Bomet County (5.8%) has the highest HIV prevalence being position two after Turkana county (7.6%) in the former Rift valley province. In terms of ART retention the county is ranked position 39 out of 47 with an adult coverage of 38% (24389) and 16% (2525) of the children in need ART treatment, with an annual HIV infections of 1875 (of this 90 are children) making it position 16 of the possible 47 counties. Bomet orphans and social welfare indicators depicts 16,664 of the households had an orphan. Source: Kenya HIV County Profile 2014

Scanty data within Bomet County is available to help HIV related programmes optimize on their interventions. Hence the study endeavors to provide the critical factors necessary to enhance retention in care among the paediatric populations through analysis of determinants influencing retention. The study, therefore seeks to establish the factors determining retention of paediatrics living with HIV in Longisa County Hospital. Anti-retroviral drugs can on a big way reduce AIDS related mortality. If ART adherence is optimal then it can also lower a person's HIV virus in blood and prevent likelihood transmission of HIV. Longisa county hospital is a level four facility with an inpatient department and several outpatient clinics including the ART clinics for adults and children.

Purpose of the Study:

The purpose of the study was to determine factors influencing retention among HIV positives paediatrics in Longisa County Referral Hospital in Bomet, Kenya.

Research Objectives:

The study was guided by the following objectives

1. To determine the demographics factors influencing retention rates among HIV positive pediatric in care and treatment e.g. age and gender
2. To assess how the type of caregiver influence retention among HIV positive pediatric retention in care and treatment
3. To explore how the HIV status of the caregiver influences HIV positive pediatric retention in care and treatment.

Research Questions:

The study sought to provide answers to the following research questions

1. To what extent do demographic factors influence HIV positive pediatric retention in care and treatment?
2. How does the type of caregiver influence HIV positive pediatric retention in care and treatment?
3. How does the HIV status of the caregiver influence HIV positive pediatric retention in care and treatment?

2. LITERATURE REVIEW

2.1 Introduction:

This section provides the literature review of the study and establishes the gap existing from the analyses of the available studies. The areas covered in this chapter include; theories used, empirical evidence, conceptual framework and summary of literature review.

2.2 Theoretical Review:

According to (Evenett and Hoekman, 2005), theories can be classified according to their scope, function, structure and levels. Several theories and models have been put forward by scholars to explain the field of retention in care. However these theories and models have their roots in retention in care (Croom, 2010). The relationship depicted by these theories and models is therefore reflected in this section of the literature concerning factors affecting retention in care among HIV positive children attending Longisa county referral hospital, Bomet County, Kenya.

2.2.1 Theory-based Approach to Retention in HIV Care:

To date, no conceptual model explicating behavioral determinants of HIV positive patients' decisions to attend (vs. not attend) HIV medical care visits with some degree of regularity (i.e., retention in HIV care) has been formally evaluated (Cheever, 2007; Horstmann et al., 2010; L. R. Smith et al., 2012). Models used to date in the HIV- and chronic disease-care literatures examining patient's relationship with their medical care attendance have focused on issues that facilitate access to and utilization of medical care services (R. M. Andersen, 1995; Gelberg, Andersen, & Leake, 2000), or the delivery of chronic disease care (E. H. Wagner, 1998; E. H. Wagner et al., 2001) and patient's management of chronic disease self-care behaviors (Holzemer, 1994; Holzemer & Reilly, 1995). Collectively these models identify many of the demographic, social, structural, policy, and funding challenges the US faces in retaining PLWH in HIV care as previously reviewed in Chapter 1. These models, however, do not articulate the behavioral processes PLWH use to navigate these challenges and attend their routine HIV care appointments over prolonged periods of time (i.e., retention in HIV care).

Of these models used to date, ones which examine HIV care utilization and access specifically reflect applications of Andersen's Behavioral Model for Health Care Access / Utilization (R. Andersen et al., 2000; Bradford, Coleman, & Cunningham, 2007; Cunningham et al., 2006; M. Smith et al., 2000; Ulett et al., 2009; Uphold & Mkanta, 2005), which seeks to explicate predisposing (e.g., race/ethnicity, education, living situation, age, health beliefs, level of treatment information), enabling (e.g., stigma/social support, having a usual source of care, current income and health insurance status, travel and clinic wait times, size/density of geographic region), and need-based factors (e.g., perceived and objective health status) that are predictive of an individual accessing and/or utilizing available HIV care and treatments (vs. sustained and routine access/use of HIV care over time). Conversely, applications of Wagner's Chronic Care Model call for comprehensive system-level change to facilitate improved chronic disease care delivery, reforming the established acute-illness focused primary care model, and supporting patient's chronic disease self-management abilities at the community- and health-systems-level (Chu & Selwyn, 2011; A. L. Gifford & Groessl, 2002; Health Resources and Services Administration, January 2006).

While these HIV care-focused models all aim to describe determinants impacting HIV care-seeking, HIV care-delivery, and HIV self-care factors shaping the health outcomes of PLWH, they do not comprehensively attend to the internal behavioral processes underlying patients' decision to routinely attend (vs. not attend) their HIV care appointments within specified intervals (i.e., retention in care). Nor do these models specify how retention in care would be maintained over time and throughout changing life circumstances, within the available systems of care.

An application of a social cognitive-based health behavior theory may greatly enhance efforts to promote retention in HIV care by guiding the parsimonious identification of critical information, motivation, and behavioral skills elements affecting patients' retention in HIV care decisions and behaviors.

2.3 HIV treatment in Kenya:

The overall government policy is to provide HIV and AIDS treatment services free to all treatment eligible citizens. The Ministry of Health recommends that all HIV-infected adults and adolescents with a CD4 count¹³ of ≤ 350 cells/ μ L or persons with active tuberculosis, women who are pregnant or breast-feeding, sero-discordant¹⁴ relationships and PLWHA with WHO stage III or IV conditions, regardless of the CD4 cell count should be initiated on ART (NASCO, 2014: 178). The WHO clinical staging system classifies HIV based on the clinical manifestations that can be recognized and treated by clinicians in diverse settings, including resource constrained settings, and by clinicians with varying levels of HIV expertise and training, thus, HIV disease can be classified as stage I, II, III, or IV, with stage IV being the most advanced disease stage (NASCO, 2014:201). In 2013, WHO released new global recommendations for ART initiation? This guidance raised the immunologic threshold for ART initiation from $CD4 \leq 350$ cells/ μ L to $CD4 \leq 500$ cells/ μ L (NASCO, 2014:176).

The Kenya AIDS strategic framework for the period 2014/2015-2018/2019 aims to reduce new infections by 75 %, AIDS-related deaths by 25 % and stigma and discrimination by 50 % by 2019. One of the key strategies is to ensure that 90 % of PLWHA are tested for HIV, ensuring that 90 % of those are retained on ART and 90 % have achieved undetectable levels of HIV virus copies in their blood hence 90-90-90 initiative (Daily Nation, Thursday, April 28,2016, p.15). Antiretroviral therapy services were first introduced into the public sector in Kenya in 2003 with only less than 10 health facilities providing treatment. These services were first started in five pilot public health facilities in August 2003 including Nyeri, New Nyanza, Rift Valley and Coast provincial general hospitals as well as Kenyatta National Referral Hospital (NASCO, 2008:5). The number of facilities administering antiretroviral therapy increased from 731 in 2008 to 1,171 by early 2011. As of December 2011, 1,405 facilities (including 1,242 public sector facilities) offered antiretroviral therapy (NACC and NASCO: 2012:71). In 2002, the cost of ARV treatment was on average KES 30, 000- 40,000. Today ARV are provided free in public and some private health facilities. The number of treatment-eligible adults and adolescents in Kenya is estimated at 888,000 (766,000 to 1,009,000) and approximately 860,000 of them are receiving ART (NASCO, 2014:178; Daily Nation, Friday May 6, 2016, p.9). At least 195,299 adolescents are on ART and another 315,000 who are in need are yet to be initiated (Daily Nation, Wednesday May 11, 2016, p.3).

2.3.1 To determine the demographic factors influencing retention rates among HIV positive children on anti-retroviral therapy:

Demographic factors include the age and sex of the child. Different studies have shown varied outcomes among age and sex of the child living with HIV, when disaggregated by different age brackets it depicted better retention amongst the less than 10 years as compared to over 10years. Some of the critical components affecting adherence in the above 10 year olds include transitioning to be an adolescent, environmental changes i.e school, peer pressure. This provides the information that age has a confounding effect on retention in treatment of PLHIV; limited data is available in Bomet County on retention per age disaggregation. Identifying whether boys and girls benefit equally from care and treatment and ascertaining the reasons contributing to any difference could inform facility level modalities designed to address these differences and optimize ART delivery. Hence the study enabled us to know the demographics factors influencing retention among HIV positives pediatrics in care and treatment Longisa County Referral Hospital

2.3.2 To assess how the type of caregiver influence retention among HIV positive children on anti-retroviral therapy:

A big impediment in the provision health care following test and start context guidelines as recommended in Kenya is retaining clients in care and treatment. Retention is particularly low in client's not yet eligible anti-retroviral drugs as

compared to those on ART. Major studies have focused on adults who rely on themselves in retention care and treatment as opposed to children who rely upon other persons to follow their medicines as recommended. Previous studies have shown better retention and favorable outcomes if the caregiver is the biological parent as compared to other type of caregivers. There is limited data on loss to program between testing HIV to the start of ART in children. Better retention in care in less than 15 years may be associated with more or less similar factors as in adults but in addition also depend on the caregiver. Caregivers range from the biological parents, brother/sisters and grandparents. Limited data exist on the contribution of the associated factors and how they influence retention paediatric population

2.3.3 To explore how the HIV status of the caregiver influence HIV positive children on anti-retroviral therapy:

Since the advent of ART, deaths arising from people living with HIV/AIDS have decreased spontaneously both in resource endowed and resource constrained settings. Therefore, favorable treatment outcomes in children rely good understanding on optimal adherence and support at the household level (WHO, 2013). However, in majority of cases they have inadequate knowledge, skills, or resources to tackle it (Irwin et al., 2009). Where differences have been reported, less is known about the reasons. Previous studies depicts that children living with HIV under the care of HIV negative caregivers had better outcomes as compared to the HIV positives counterparts. This study provided insights to the region on HIV status of the caregiver influence on retention among HIV positive

2.4 Chapter Gaps and Summary:

From the literature review it is necessary that pediatric HIV positives retention is contributed by a multiplicity of factors. To improve retention then these key determinants need to be looked into for life- long retention in care and treatment and thus contribute to reduced opportunistic infections, improved immunity, optimal viral load suppression and finally enhanced quality of life. Culture differs according to the region and diverse communities living in a particular region hence this study brought in attention ways in which pediatric HIV retention in care and treatment can be improved.

3. RESEARCH METHODOLOGY

3.1 Introduction:

This section explains the methodology adopted during this study. The subsection in this section include research, target Population, population and sample size, sampling techniques, data collection instruments and data collection procedures

3.2 Research design:

A research design is the structure of the research. It is the scheme, outline or plan that is used to generate answers to research problems. A conceptual structure upon which research is conducted; it's a blue print for the collection and analysis of data in the research process

Moreover, the study targets pediatrics enrolled at Longisa County Hospital. According to Kothari (2004), a research design can be defined as the framework or structure of a research. The study used descriptive research design. It is often used to narrow down a very broad field of research into one or a few easily researchable examples. This design can extend experience or add strength to what is already known through previous research and in particular, make wide use of this research design to examine contemporary real-life situations and provide the basis for the application of concepts and theories and the extension of methodologies. Descriptive research design is a technique in which detailed information concerning a phenomenon is gathered by asking questions to respondents (Best and Khan 2006). The outcome of such investigation makes it possible to find explanation to the social phenomenon in question. The descriptive research method was therefore appropriate for the study as it enabled the researcher to gather information on the current status of retention of HIV pediatrics in care and treatment in Longisa County Hospital.

3.3 Target Population:

A target population is simply the group of individuals you have selected to study or research. A sample population is a subgroup of the target population. Sample populations are often used in research because of the near impossibility of polling or studying the entire group. Ideally, sample populations are a selection of individuals who more or less reflect the demographics of your chosen target population. The target population can be compared to a snapshot of the whole, or a slice of the pie. A population from where the study sample has been drawn and upon which the results can be generalized.

Target population is population to which the researcher wants to generalize the results of the study (Mugenda and Mugenda, 2003). For this study, the target population was 320 children lost to follow up enrolled at Longisa hospital being represented by their caregivers. According to the DHIS-2, there are 320 pediatrics ever enrolled between January 2010 and December 2017. The targeted population is the sampled pediatrics under fifteen years of age who was either female or male, HIV positives and has been on ART between the years of 2010 to the year of 2017 and enrolled at Longisa County Hospital pediatric comprehensive care clinic.

3.4 Sample Size and Sample Selection:

Sample size and sample selection is key and is highlighted in details below.

3.4.1 Sample Size:

Purposeful Sampling is the most common sampling strategy. In this type of sampling, participants were selected or sought after based on pre-selected criteria based on the research question. A sample is a subset of a population. Mugenda and Mugenda (2003) says that for experimental studies 30 or more cases is enough, for descriptive studies (10%-30%) is adequate. Purposive sampling was used to identify the caregivers of pediatrics living with HIV and on care and treatment at Longisa County Hospital. Since the target population was not very big (320), a census was used. This means that all the units in the population took part in the study.

3.4.2 Sample Selection:

Probability sample design gives an equal chance for each item in the target population to be picked thus was applied during the research process. We define sample as a finite part or subset of participants drawn from the target population. In turn, the target population corresponds to the entire set of subjects whose characteristics are of interest to the research team. Based on results obtained from a sample, researchers may draw their conclusions about the target population with a certain level of confidence, following a process called statistical inference. When the sample contains fewer individuals than the minimum necessary, but the representativeness is preserved, statistical inference may be compromised in terms of precision (prevalence studies) and/or statistical power to detect the associations of interest. On the other hand, samples without representativeness may not be a reliable source to draw conclusions about the reference population (i.e., statistical inference is not deemed possible), even if the sample size reaches the required number of participants. Lack of representativeness can occur as a result of flawed selection procedures (sampling bias) or when the probability of refusal/non-participation in the study is related to the object of research.

Although most studies are performed using samples, whether or not they represent any target population, census-based estimates should be preferred whenever possible. However, there are several theoretical and practical reasons that prevent us from carrying out census-based surveys, including: ethical issues: it is unethical to include a greater number of individuals than that effectively required; budgetary limitations: the high costs of a census survey often limits its use as a strategy to select participants for a study; logistics: censuses often impose great challenges in terms of required staff, equipment, etc. to conduct the study; time restrictions: the amount of time needed to plan and conduct a census-based survey may be excessive; and, unknown target population size: All these reasons explain why samples are more frequently used. However, researchers must be aware that sample results can be affected by the random error (or sampling error). Thus, during the sample size estimation the investigator must specify in advance the highest or maximum acceptable random error value in the study. Most population-based studies use a random error ranging from 2 to 5 percentage points. Nevertheless, the researcher should be aware that the smaller the random error considered in the study, the larger the required sample size. Included in the study are children aged 15 years and below, HIV positives and must have been on treatment for at least 6 months.

3.5 Data Collection Instruments:

The data collection method for this study was extraction of data from the patients/clients charts in the hospital records department and using a structured interviewer led questionnaire. Sounders (2003) states that a questionnaire is a general term that includes all technique of data collection in which each a person/a record is asked/checked to respond to the same set of questions on a predetermined outcome. Questionnaires may be used to collect regular or infrequent routine data, and data for specialized studies. Some of the data that was obtained through questionnaires include type of caregivers and

International Journal of Novel Research in Humanity and Social SciencesVol. 5, Issue 4, pp: (290-306), Month: July - August 2018, Available at: www.noveltyjournals.com

HIV status of the caregivers etc. A questionnaire requires respondents to fill out the form themselves, and so requires a high level of literacy hence translators was employed to facilitate this process. Since multiple languages are common, questionnaires were prepared using the major languages of the target group. Special care needed to be taken in these cases to ensure accurate translations.

In order to maximize return rates, questionnaires were designed to be as simple and clear as possible, with targeted sections and questions. Most importantly, questionnaires were also as short as possible.

The information that was obtained through questionnaires consists of almost any data variable. Questionnaires, contained close-ended questions and in some instances room were available where the respondent is encouraged to reply at length and choose their own focus to some extent where applicable

To facilitate filling out forms and data entry in a structured format, the form was ideally be, or at least laid out with data fields clearly identifiable and responses pre-coded. In general, writing should be reduced to a minimum (e.g. tick boxes, multiple choices), preferably being limited to numerals because the respondents were able to answer questions unanimously without fear.

Data was also extracted using a standardized data extraction sheet. The following information was extracted for each study: inclusion criteria, characteristics of the children (age, gender, type of the caregiver and HIV status of the caregiver. In addition, data contained the number of children currently on treatment or lost to program (i.e. lost to follow-up, transferred-out or died) during different time periods.

3.5.1 Instruments Pre-Testing:

A preliminary mini study conducted in a small scale to establish the effectiveness of data collection instruments. Pre-test sample should be between 1-10% of the study sample. One important objective of pre-testing questionnaires is to get at the thinking behind the answers so that the researcher can accurately assess whether the questionnaire is being filled out properly, whether the questions are actually understood by respondents, and whether the questions ask what the researcher thinks they are asking. Pre-testing also helps assess whether respondents are able and willing to provide the needed information.

In pre-testing, the respondents filled out the questionnaire, giving their views along the way or afterward. One approach was to give the questionnaire as an interview, asking for clarification of answers and clarifying questions along the way. The respondents' views were also obtained during a post-questionnaire interview or in a focus group. Another approach was to have respondents think out loud as they answer. Others included Cognitive interviewing, expert evaluation, respondent debriefing and focus groups. The pre-testing was done in Bomet health which is a satellite facility for Longisa County hospital also offering HIV positive pediatric services in the county.

4. DATA ANALYSIS, PRESENTATION AND INTERPRETATION**4.1 Introduction:**

This section presents data analysis and discusses the findings of the study. The findings being discussed are connected to the research questions of the study. This chapter focuses on presenting the collected data in a meaningful way. The findings and analysis of data, and the summary is presented in this chapter.

4.2 Results of pilot Study:

A pilot study was undertaken to pretest data collection instrument for validity and reliability. According (Orodho, 2003), a pilot study is necessary for testing the reliability of data collection instruments. (Cooper & Schindler, 2001) explains reliability of research as determining whether the research truly measures that which it was intended to measure or how truthful the research results are. Pilot study is thus conducted to detect weakness in design and instrumentation and to provide accurate data for selection of a sample (Young, 2009). The validity of the questionnaires was determined using construct validity method. Construct validity is the degree to which test measures an intended hypothetical construct (Mugenda, 2003). Using a panel of "experts" familiar with the construct is a way in which this type of validity can be assessed; the experts can examine the items and decide what that specific item is intended to measure (Mugenda, 2003). The coefficient of the data gathered from the pilot study was computed with assistance of Statistical Package for Social

Sciences (SPSS). A coefficient of above 0.5 was obtained and this indicated that the data collection instruments were valid (Kothari, 2005). The recommendations from the pilot study respondents were used to improve on data collection instruments. Data validity played an important role towards generalization of the gathered data to reflect the true characteristics of the study problem.

The reliability of the questionnaires was determined using test retest method. A reliable measurement is one that if repeated a second time gives the same results as it did the first time (Mugenda and Mugenda, 2003). Test-retest reliability is a measure of reliability obtained by administering the same test twice over a period of time to a group of individuals (Klein and Ford, 2003). The scores from time 1 and time 2 can then be correlated in order to evaluate the test for stability over time (Klein and Ford, 2003). Test-retest reliability is the degree to which scores are consistent over time; it indicates score variation that occurs from testing session to testing session as a result of errors of measurement (Kothari, 2005). An internal consistency technique using Cronbach’s alpha was then be applied to measure the reliability of all the questionnaires issued to different group of pilot respondents. According to (Kothari, 2005) Cronbach’s alpha is a coefficient of reliability that gives an unbiased estimate of data generalizability. An alpha coefficient higher than 0.75 indicates that the gathered data has a relatively high internal consistency and could be generalized to reflect opinions of all respondents in the target population (Mandrish and Schaffer, 2005).

Table 4.1: Reliability Analysis

Reliability Statistics	No. of Items	Cronbach’s Alpha value
Demographics	6	0.56
HIV status of the caregiver	6	0.64
Type of caregiver	6	0.83

4.3 Response Rate:

A total of 320 questionnaires were sent to the respondents. However, 300 questionnaires were completed which results in a 93.7% response rate. Mugenda and Mugenda (1999) argue that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Therefore, the response rate of this study is excellent for the analysis and reporting.

4.4 Demographic Factors Influencing HIV positive Pediatrics in care and treatment:

4.4.1 Gender of child:

The gender distribution of the respondents was as shown on table 4.2.

Table 4.2: Gender distributions of the HIV children

	Frequency	Percent	Cumulative Percent
Male	160	53.3	53.3
Female	140	46.7	100.0
Total	300	100.0	

Source: Research data (2018)

As depicted by table 4.2, 53.3% of the subjects were males and 46.7% were female. This shows that the majority of the subjects were male.

Table 4.3: Age Distribution

	Frequency	Percent	Cumulative Percent
0-3 years	40	13.3	13.3
3-6 years	55	18.3	31.6
6-9 years	60	20.0	51.6
9-12 years	100	33.4	85
12-15 Years	45	15.0	100
Total	300	100.0	100

Source: Research Data (2018)

The age group 0-3 years constituted 40 (13.3%) of the total children. The age brackets 3-6 years were recorded at 55(18.3%) as shown on the table 4.3. The age group 6-9 years constituted 60 (20%), while 9-10 years constituted 100 (33.4%), and 12-15 years was recorded at 45 (15%). This data shows that most children were aged 6-9 and 9-12 which constituted 53.4% of the total children.

Studies suggest that retention is especially challenging for younger, sicker HIV-infected or exposed children (Sengayi et al., 2013). This is not surprising given that immunosuppression is a major risk factor for mortality in children (Braitstein et al., 2010), and that infants and young children often present with advanced and rapidly progressing illness (Newell, 2004). Delayed, individual disclosure status (to the child) is also a risk factor for LTFU, which ideally begins in mid or late childhood. Retention at 36 months after ART initiation is higher for older children aware of their infection compared to those unaware of it. Despite this, approximately two-thirds of the older children and adolescents in this cohort were unaware of their HIV status (Arrivé et al., 2012).

Although majority of the caregivers had at least secondary education and had knowledge of the implications of poor retention, this did not translate to improved retention rates. Other studies also showed that level of education did not affect retention level although lower literacy may impede retention by interfering with the caregiver's ability to understand the importance of adherence or the specifics of medication dosing (Müller, Bode, Myer, & Stahl, 2011). In this study, 7.5% of caregivers did not know the implication of non-adherence while almost 5% of the caregivers who missed doses did not understand the dosage.

4.5 Type of Caregiver influence on HIV positive children on anti-retroviral therapy:

The study seeks to find out whether Caregiver and provider characteristics influence retention. The respondents were asked to state their level of agreement whether the type of caregiver influenced HIV positive children in care and treatment. The results are as shown in table 4.4 below.

Table 4.4: Type of caregiver influence on HIV positive children on anti-retroviral treatment

Type of caregiver influenced HIV positive children in care and treatment	Frequency	Percent	Cumulative Percent
Strongly disagree	20	6.7	6.7
Disagree	38	12.7	16.4
Neutral	72	24.0	43.4
Agree	116	38.6	82.0
Strongly agree	54	18.0	100.0
Total	300	100.0	

Table 4.4 shows that most of the respondents 170 (56.6%) either agreed or strongly agreed that the type of caregiver influenced HIV positive children in care and treatment. Seventy-two (24%) were neutral on the subject matter. However, 58 (19.4%) either disagreed or strongly disagreed that the type of caregiver influenced HIV positive children in care and treatment. From this data, we can conclude that the type of caregiver influenced HIV positive children in care and treatment, though a considerable number of the respondents 132 (43.4%) were neutral , disagreed or strongly disagreed to the statement.

In order to determine the connection between the caregiver and the child who is lost to follow-up, the respondents were asked to state who the caregiver was to the child. Considering relation of the caregivers to the child, 36% was mother, 15.5% was father and another 15.5% was both. Only 28% of caretakers were aunt or uncle, 24% were grandparents and 35% were grouped as others.

Antiretroviral therapy (ART) success hinges on adherence. Adherence is the extent to which a patient’s behavior matches the prescribed health care regimen in terms of care. In this study, children with mothers as the primary caregiver were three times more likely to be non-adherent. This may be due to the mother being too ill with her own illness as majority of paediatric HIV is acquired vertically by mother-to-child transmission. Also, some mothers may not have disclosed their status and that of the child to other family members hence none to assume responsibility for administration of drug to the child when the mother is ill. It may also be that when the mother had died from HIV-related illness, there is usually a concerted effort by other family members to save the child by giving the drugs more regularly.

According to caregiver self-reports, 96% study participants had optimal levels of adherence (>95%). The number of participants who reported missing at least one dose of ARV medication in the last 3 days was 19.5%. This was higher than those who reported missing a dose of ARVs in the last 2 weeks who were 11.7%.

4.6 HIV status of the Caregiver Influence on HIV positive children on anti-retroviral treatment:

4.6.1 HIV status of caregivers:

The caregivers who participated in the study were asked to state their HIV status. The results indicate that 90 (30%) were HIV positive and 210 (70%) were HIV negative.

Table 4.5: HIV status of caregivers

HIV status of caregiver	Frequency	Percent	Cumulative Percent
Positive	90	30	30
Negative	210	70	100
Total	300	100.0	

Many attitudes and expectations related to HIV disclosure were shared by the caregivers interviewed. All caregivers felt that a child who knows his or her HIV status will have a “Good attitude towards his or her medications”. However, a significant majority of caregivers relayed that a child with HIV would blame their parents for their HIV infection if their status were disclosed, and many reported that children who are HIV positive are discriminated against in their community. Nearly half (42%) of caregivers admitted to initially telling the child that they were sick with a disease other than HIV. Similar to the pattern observed with respect to who is most responsible for providing the child information on HIV, the caregiver interviewed identified themselves as the person who disclosed the status to the child in the vast majority of cases. When asked to describe what they said during the initial disclosure event, HIV positive caregivers commonly reported disclosing their own HIV status to the child at the same time they disclosed the child’s. Similarly, caregivers who were not the biological parent of the child commonly reported informing the child that his or her parent was also HIV positive as part of the initial disclosure event. Caregivers also described stressing to the child that taking their HIV-related medications was crucial to their health and future, although many also reported telling the children that their antiretroviral medications would eventually cure them of the disease.

4.6.2 HIV status of the caregiver influence on HIV positive children on anti-retroviral treatment?

The study sought to determine if the HIV status of the caregiver had influence on retention on care and treatment among children with HIV. The respondents were asked to state how they agree or disagree with the statement that HIV status of the caregiver has influence on HIV positive retention on care and treatment. The 5-likert scale measure was used. The responses were recorded as shown in table 4.6 below.

Table 4.6: HIV status of the caregiver influence on HIV positive children on anti-retroviral treatment ?

HIV of caregiver influenced retention on care and treatment	Frequency	Percent	Cumulative Percent
Strongly disagree	18	6.0	6.0
Disagree	52	17.3	23.3
Neutral	65	21.7	45.0
Agree	144	48.0	93.0
Strongly agree	21	7.0	100.0
Total	300	100.0	

According to table 4.6 above, the majority of the respondents 165 (55%) either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. Sixty-five percent neither agreed nor disagreed to the statement, 23.3% either disagreed or strongly disagreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. Disclosure of the HIV status of the child and/or the caregiver to family and community members presented multiple challenges. Most of those caregivers, who had disclosed, did so to the family members closest to them. They believed these persons (mainly spouses, sisters and mothers) would provide them with the necessary emotional and financial support. Themes identified around the reasons for non-disclosure included fear of

stigmatization either at work or at home, loss of psychological and financial support after disclosure and HIV infection being a private affair.

Unfortunately, lack of disclosure resulted in various hurdles. Caregivers who had formal employment were unable to request regular time off to take their children to the clinic and school going children missed their appointments during the exam period. Furthermore, those caregivers, who were not the biological parents of the children, were not always aware that the children left under their protection needed HIV care. Some of them discovered this during the visits made by the community health workers.

4.7 Correlation Analysis:

Correlation is a term that refers to the relationship between two variables. A strong or high correlation means that two or more variables have a strong relationship with each other while a weak or low, correlation means that the variables are hardly related. The value of -1.00 represents a perfect negative correlation while a value of +1.00 represents a perfect positive correlation. A value of 0.00 means that there is no relationship between variables being tested (Orodho, 2013). The most widely used types of correlation coefficient is the Pearson R which is also referred to as linear or product-moment correlation. This analysis assumes that the two variables being analyzed are measured on at least interval scales. The coefficient is calculated by taking the covariance of the two variables and dividing it by the product of their standard deviations. In this study pearson correlation is carried out to determine how the research variables related to each other. Pearson’s correlation reflects the degree of linear relationships between two variables. It ranges from +1 to -1. A correlation of +1 means there is a perfect positive linear relationship between variables (Young, 2009)

Table 4.7: Correlations Analysis

		Retention in care	Demographics	Type of caregiver	HIV status of the caregiver
Retention in care	Pearson Correlation	1	.942	.474	.669
	Sig. (2-tailed)		.007	.073	.043
Demographics	Pearson Correlation	.942	1	.208*	.248*
	Sig. (2-tailed)	.007		.039	.013
Type of caregiver	Pearson Correlation	.073	.208*	1	.330**
	Sig. (2-tailed)	.024	.039		.001
HIV status of the caregiver	Pearson Correlation	.043	.248*	.330**	1
	Sig. (2-tailed)	.039	.013	.001	

Source: Researcher (2014)

A correlation analysis was to find out how demographics, type of caregiver, and hiv status of the caregiver are correlated with retention in care. Table 4.7 shows positive pearson correlation coefficient form all the three factors discussed. (Bailey, 2010) indicates that demographics, type of caregiver, and hiv status of the caregiver have positive correlation with retention in care. The significance of demographics, type of caregiver, and hiv status of the caregiver verses retention in care enhancement as indicated in the table 4.7 below. These findings indicate that there was a positive linear relationship between demographics, type of caregiver, and hiv status of the caregiver and retention in care.

5. SUMMARY OF THE FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction:

This section summarizes the findings of the research study, draws conclusions and makes recommendations necessary for possible way forward and consideration. Data that was analyzed in conformity with the research objectives and tables

inserted to aid in the presentation. The study was conducted so as to assess how various determinants influenced HIV positive children retention in care and treatment in Longisa County Hospital. Also in the chapter suggests possible further studies that may be carried out in the future.

The purpose of the study was to determine factors influencing retention among HIV positives pediatrics in Longisa County Referral Hospital in Bomet. Various recommendations were given based on the study and conclusions given.

5.2 Summary of the Findings:

The study was guided by three objectives: to determine the demographics factors influencing retention rates among HIV positive paediatric in care and treatment, to assess how the type of caregiver influence retention among HIV positive paediatric retention in care and treatment, and to explore how the HIV status of the caregiver influences HIV positive paediatric retention in care and treatment.

The response rate for the study was 93.7%, which excellent for the analysis and reporting. Around 53.3% of the subjects were females and 44.7% were male. This shows that the majority of the children lost to follow up were male. The study found that the majority of the caregivers were female representing 61 %. Similarly, the results indicate that the majority of the caregivers (27%) were between 31 – 40 years, followed by those in the 41 – 50 age brackets (21%). The lowest percentages of adherence were observed in caregivers 20 years of age and below (32%) and those above 60 years (31%). On the other hand, the study found that children in age group 0-3 years constituted 40 (13.3%) of the total children lost to follow up. The age brackets 3-6 years were recorded at 55(18.3%). The age group 6-9 years constituted 60 (20%), while 9-10 years constituted 100 (33.4%), and 12-15 years was recorded at 45 (15%). In terms of level of education, results from the study shows that thirty-three (11%) had primary education, 167 (55,6%) had attained secondary level of education, 92(30.7%) had college education and 8(2.7%) had university education.

The study revealed that most of the respondents 170 (56.6%) either agreed or strongly agreed that the type of caregiver influenced HIV positive children in care and treatment. Seventy-two (24%) were neutral on the subject matter. However, 58 (16.4%) either disagreed or strongly disagreed that the type of caregiver influenced HIV positive children in care and treatment. Considering relation of the caregivers to the child, 36% was mother, 15.5% was father and another 15.5% was both. Only 28% of caretakers were aunt or uncle, 24% were grandparents and 35% were grouped as others. The caregivers who participated in the study were asked to state their HIV status. The results indicate that 90 (30%) were HIV positive and 210 (70%) were HIV negative.

The study found that the majority of the respondents 165 (55%) either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. Sixty-five percent neither agreed nor disagreed to the statement, 23.3% either disagreed or strongly disagreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment.

5.2.1 Demographic Factors Influencing HIV positive Pediatrics in care and treatment:

This study showed no significant association between the caregivers' "gender" with retention. A slightly higher percentage of male caregivers, however, showed more adherent cases than the female. This can be explained by the fact that even when married, the burden of running the home is most often on the woman's shoulder. Women are thus overburdened with responsibility and where there is no support, can easily forget to administer treatment to the child. Where the women are single and have the additional task of fending for the family, the risk of non-adherence is high. Women thus whether single or married have difficulty coordinating adherence with work, family or care giving responsibility. These results compare with a study in West Africa related being a female caregiver to child non-adherence (Julie *et al.*, 2008).

Caregivers' age was not associated with retention. It was however observed that prevalence of adherence was low among caregivers below 20 and those over 60 years of age. These have low capacity or low ability to adhere, as adherence is dependent on having the necessary cognitive and technical skills to follow a medication scheme, perceived self-efficacy and problem solving capacity. The caregivers' age can be used as a guide to assess their ability to follow the child's treatment.

Considering the marital status of the caregivers, the study showed that 156 (52%) of the caregivers were single. They were either widows/widowers, divorced or were unmarried. 144 (48%) were married or living with a partner. 43% of

both the married and single caregivers" did adhere, while 57% of both married and single caregivers" did not adhere. Caregivers" marital status however showed no statistical significant association to adherence to ART in children at Longisa District Hospital.

5.2.2 Type of Caregiver influencing HIV positive children in care and treatment:

The study shows that most of the respondents 170 (56.6%) either agreed or strongly agreed that the type of caregiver influenced HIV positive children in care and treatment. Seventy-two (24%) were neutral on the subject matter. However, 58 (16.4%) either disagreed or strongly disagreed that the type of caregiver influenced HIV positive children in care and treatment. From this data, we can conclude that the type of caregiver influenced HIV positive children in care and treatment, though a considerable number of the respondents 132 (43.4%) were neutral or disagreed to the statement. Considering relation of the caregivers to the child, 36% was mother, 15.5% was father and another 15.5% was both. Only 28% of caretakers were aunt or uncle, 24% were grandparents and 35% were grouped as others.

Studies detailing caregiver characteristics influencing pediatric retention are few but consistent. Caregiver decisions regarding whether children receive treatment are influenced by many factors including transport costs, food availability, time constraints, perceptions that the child is healthy, perceived stigma, religious beliefs, and male partner support (Wachira, 2012). In one study, 30% of caregivers reported that children were lost to follow up because caregivers either had not disclosed their own HIV status or were afraid of family/community stigma related to their HIV status or that of the child (Braitstein, 2011). Additionally, caregivers may be unaware that pediatric HIV treatment is available and thus perceive no benefit in seeking these services for children.

"Caregivers" relationship to the child" was independently associated with child adherence in this study. Children cared for by guardians had a slightly higher prevalence of adherence. One of the explanations of this observation could be that the guardians were more committed to giving the children medication because they readily and willingly accepted the responsibility of the child's care, thus the child was not a burden to them. Higher prevalence of non-adherence would be observed in cases where the child was a burden to the guardian, who in this case, could be a relative that possibly has taken over the care of the child more because of the imposition of a situation, such as advanced AIDS or death of the biological parents, than of his/her own free will. It is thus important that the team that treats the child be aware of the quality of the relationship between the caregiver and the child, and should involve other family members in the management of the child's disease where necessary.

5.2.3 HIV status of the Caregiver Influence on HIV positive paediatrics retention:

The results from the study indicate that 90 (30%) were HIV positive and 210 (70%) were HIV negative. Many attitudes and expectations related to HIV disclosure were shared by the caregivers interviewed. All caregivers felt that a child who knows his or her HIV status will have a "Good attitude towards his or her medications". The study found that the majority of the respondents 165 (55%) either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment. Sixty-five percent neither agreed nor disagreed to the statement, 23.3% either agreed or strongly agreed that HIV status of the caregiver has influence on HIV positive retention on care and treatment.

It has been noted that caregiver's HIV positive status was a predictor of non-adherence (Mellins *et al.*, 2003) Adherence behavior was more successful in the absence of parental HIV illness. When subjected to multivariate analysis, the same variable was shown not to be independently associated with non-adherence. In a study carried out by Gibb *et al.*, (2003) in which it was investigated whether the caregiver used antiretrovirals or not, the authors found no significant association with this variable and retention. The fact that the caregiver is seropositive and on ARV is not a predictor of non-adherence outcomes. In this study, 59% of the caregivers on ART, admitted to having difficulty adhering to own ARV medication. Their difficulty in adhering to own medication was associated with non-adherence outcomes in the children in bivariate analysis and was however not a predictor of non-adherence in multivariate analysis. Therefore, according to this study, the fact that caregivers found it difficult to adhere to own medication, does not affect administration of ART to the child. Healthcare providers should however monitor caregiver's own adherence, identify, and address the specific barriers to adherence, encourage and educate them on the relevance of adherence to ARV medication.

Studies have shown that complete parental disclosure helps to motivate HIV-infected children to adhere to their daily medical regimen. Disclosure enables children to understand HIV infection and to make sense of disease-related experiences and the importance of adherence (Balsini *et al.*, 2004). A study in Uganda identified complete disclosure as a

factor related to good adherence (Bikaako- Kajura et al, 2006). Another study by Polliset et al., (2009), also revealed that disclosure of HIV status to children over 6 years of age and involving children in the decision-making process regarding therapy modifications has been reported to enhance the child's cooperation with treatment.

5.3 Conclusions:

This study shows that retention in care and treatment among HIV positive children at Longisa County Referral Hospital is definitely a challenge, given the low prevalence of adherence. It is concluded that the majority of caregivers in this setting are unable to attain optimal adherence. The age, gender of the children did not show any meaningful association with retention in care and treatment.

The nature of the child-caregiver relationship was also independently associated with adherence and is a predictor of adherence. Adherence rates are higher when children are taken care of by guardians. Children under the care of their parents show low adherence rates to ART. There is thus need for social support to the parents and inclusion of other members of the community in the management of the child with HIV. Improving adherence to antiretroviral therapy in paediatric patients requires innovative and multifaceted strategies on a sustained basis in order to improve the quality of life of these patients.

The HIV status of the caregiver could have effect on retention in care and treatment among HIV children. It has been noted that caregiver's HIV positive status was a predictor of non-adherence. Adherence behavior was more successful in the absence of parental HIV illness. parental disclosure helps to motivate HIV-infected children to adhere to their daily medical regimen. Disclosure enables children to understand HIV infection and to make sense of disease-related experiences and the importance of adherence.

5.4 Recommendations:

The importance of adherence in this setting needs to be emphasized if the benefits of ART are to be observed. Caregivers in this setting need further education on the importance and benefits of adherence. There is also need for close monitoring of adherence in this setting. Caregivers need to understand the necessity and importance of regular follow ups.

The recommendation of retention as per the age and sex of the children living with HIV, its recommended that more studies to be done to have in-depth findings on age and sex impact on retention of children living with HIV.

The recommendation on type of caregiver, its recommended that the type of caregiver need further evaluation so as to gain competence and later apply its benefits to the children under the care of varied caregivers.

The recommendation on HIV status of the caregiver. The HIV positive caregiver has an immense role in survival of the child living with HIV. Studies ought to centre on viral suppression of the caregiver and how this impacts on retention of the HIV positive children living with HIV. It is important for healthcare givers to consider the primary caregivers' level of education as this will be a key guide in assessing the ability to adhere to the child's medication regimen. Irrespective of the level of education of the caregiver, the importance of intensive education about HIV, ARV medication and relevance of adherence to ART should be underscored before initiation of treatment.

If those who are poverty stricken are to attain optimum adherence, material/financial support should be considered. Such families should be referred to social services/social workers for assistance with accessing resources (financial, housing, transportation and child care). Close adherence monitoring and home-based nursing intervention, if sustainable, will help HIV positive children and their poor families to better adhere to prescribed medication regimens.

There is need for a positive social support system that will encourage sharing of responsibility for remembering medication within households if optimum adherence level is to be attained.

5.5 Recommendation for Further studies:

Further studies should be carried out to examine the effect of primary caregiver economic status on adherence to ART in paediatric patients. Another study could also be done to focus on the effect of primary caregiver gender and age on adherence to ART in paediatric patients. It is also recommended that a study be done to assess the effect of HIV

disclosure on Quality of Life of paediatric patients. The results of this study should lead to the formulation of guidelines on disclosure of HIV to the child, therefore facilitate adherence.

REFERENCES

- [1] D. Harries, R. Zachariah, S. D. Lawn, and S. Rosen, "Strategies to improve patient retention on antiretroviral therapy in sub-Saharan Africa," *Tropical Medicine and International Health*, vol. 15, no. 1, pp. 70–75, 2010. View at Publisher · View at Google Scholar · View at Scopus
- [2] D. Harries, S. D. Lawn, H. Getahun, R. Zachariah, and D. V. Havlir, "HIV and tuberculosis—science and implementation to turn the tide and reduce deaths," *Journal of the International AIDS Society*, vol. 15, no. 2, Article ID 17396, 2012. View at Google Scholar
- [3] Saez-Cirion, C. Bacchus, L. Hocqueloux, V. Avettand-Fenoel, and I. Girault, "Post-treatment HIV-1 controllers with a long-term virological remission after the interruption of early initiated antiretroviral therapy ANRS VISCONTI Study," *PLOS Pathogens*, vol. 9, Article ID e1003211, 2013. View at Google Scholar
- [4] Arrivé E, Dicko F, Amghar H, Aka AE, Dior H, Bouah B, et al. HIV status disclosure and retention in care in HIV-infected adolescents on antiretroviral therapy (ART) in West Africa. *PLoS One*. 2012;7:e33690.
- [5] S. Taylor, T. J. Wilkin, N. Shalev, and S. M. Hammer, "CROI 2013: advances in antiretroviral therapy," *Topics in Antiviral Medicine*, vol. 21, no. 2, pp. 75–89, 2013. View at Google Scholar
- [6] Bandura, A., & Walters, R. H. (1963). *Social learning and personality development*. New York: Holt, Rinehart, & Winston.
- [7] Bikaako-Kajura W., Luyirika E., Purcell D.W., Downing J., Kaharuzza F., Mermin J., Malamba S., & Bunnell, R. (2006). Disclosure of HIV status and adherence to daily drug regimens among HIV-infected children in Uganda. *AIDS Behav*, 10, S85-S93.
- [8] Blasini I., Chantry C., Cruz C., Ortiz L., Salabarría I., Scalley N., Matos B., Febo I., & Díaz C. (2004). Disclosure model for pediatric patients living with HIV in Puerto Rico: Design, implementation, and evaluation. *Journal of Developmental and Behavioral Pediatrics*, 25, 181-189.
- [9] Braitstein P, Katschke A, Shen C, Sang E, Nyandiko W, Ochieng VO, et al. Retention of HIV-infected and HIV-exposed children in a comprehensive HIV clinical care programme in Western Kenya. *Trop Med Int Health*. 2010;15:833–841
- [10] Braitstein P, Songok J, Vreeman RC, Wools-Kaloustian KK, Koskei P, Walusuna L, et al. 'Wamepotea' (they have become lost): outcomes of HIV-positive and HIV-exposed children lost to follow-up from a large HIV treatment program in western Kenya. *J Acquir Immune Defic Syndr*. 2011;57:e40–e46.
- [11] Bolton-Moore, M. Mubiana-Mbewe, R. A. Cantrell et al., "Clinical outcomes and CD4 cell response in children receiving antiretroviral therapy at primary health care facilities in Zambia," *Journal of the American Medical Association*, vol. 298, no. 16, pp. 1888–1899, 2007. View at Publisher · View at Google Scholar · View at Scopus
- [12] Mugglin, G. Wandeler, J. Estill, M. Egger, and N. Bender, "Retention in care of HIV-infected children from HIV test to start of antiretroviral therapy: systematic review," *PLoS ONE*, vol. 8, Article ID e56446, 2013.
- [13] Chomsky, N. (1959). A review of BF Skinner's Verbal Behavior. *Language*, 35(1), 26-
- [14] Committee on Hospital Care, "Family-centered care and the pediatrician's role," *Pediatrics*, vol. 112, pp. 691–696, 2003.
- [15] K. Ekouevi, A. Azondekon, F. Dicko et al., "12-month mortality and loss-to-program in antiretroviral-treated children: the IeDEA pediatric West African database to evaluate AIDS (pWADA), 2000–2008," *BMC Public Health*, vol. 11, article 519, 2011. View at Publisher · View at Google Scholar · View at Scopus.

International Journal of Novel Research in Humanity and Social Sciences

 Vol. 5, Issue 4, pp: (290-306), Month: July - August 2018, Available at: www.noveltyjournals.com

- [16] D. Charlebois, T. D. Ruel, A. F. Gasasira et al., “Short-term risk of HIV disease progression and death in Ugandan children not eligible for antiretroviral therapy,” *Journal of Acquired Immune Deficiency Syndromes*, vol. 55, no. 3, pp. 330–335, 2010. View at Publisher · View at Google Scholar ·
- [17] E. Luyirika, M. S. Towle, J. Achan, J. Muhangi, and C. Senyimba, “Scaling up paediatric HIV care with an integrated, family-centred approach: an observational case study from Uganda,” *PLoS ONE*, vol. 8, Article ID e69548, 2013.
- [18] Hirschsall, A. D. Harries, P. J. Easterbrook, M. C. Doherty, and A. Ball, “The next generation of the World Health Organization's global antiretroviral guidance,” *Journal of the International AIDS Society*, vol. 16, Article ID 18757, 2013. View at Publisher ·
- [19] Tene, M. Lahuerta, C. Teasdale, V. Mugisha, and L. Kayonde, “High retention among HIV-infected children in Rwanda during scale-up and decentralization of HIV care and treatment programs, 2004 to 2010,” *Pediatric Infectious Disease Journal*, vol. 32, pp. e341–e347, 2013.
- [20] G. Y. Asfawesen, J. Solomie, T. Bisirat, G. M. Berhanu, B. Mebratu, and S. Rahlenbeck, “Outcome in a paediatric cohort receiving ART in Addis Abeba, Ethiopia,” *Acta Paediatrica*, vol. 100, no. 8, pp. 1164–1167, 2011. View at Publisher · View at Google Scholar · View at Scopus.
- [21] Gibb, D.M., Goodall, R.L., Giacomet, V., McGee L., Compagnucci A., & Lyall, H. (2003). Adherence to prescribed antiretroviral therapy in human immunodeficiency virus-infected children in the PENTA 5 trial. *Pediatric Infect Dis Journal*, 22(1), 56-62.
- [22] B. Nachega, E. J. Mills, and M. Schechter, “Antiretroviral therapy adherence and retention in care in middle-income and low-income countries: current status of knowledge and research priorities,” *Current Opinion in HIV and AIDS*, vol. 5, no. 1, pp. 70–77, 2010. View at Publisher · View at Google Scholar ·
- [23] Ben-Farhat, M. Gale, E. Szumilin, S. Balkan, and E. Poulet, “Paediatric HIV care in sub-Saharan Africa: clinical presentation and 2-year outcomes stratified by age group,” *Tropical Medicine and International Health*, 2013. View at Google Scholar
- [24] K. Leyenaar, P. M. Novosad, K. T. Ferrer et al., “Early clinical outcomes in children enrolled in human immunodeficiency virus infection care and treatment in lesotho,” *Pediatric Infectious Disease Journal*, vol. 29, no. 4, pp. 340–345, 2010. View at Publisher · View at Google Scholar · View at Scopus
- [25] J. Kay, H. Wanzira, and T. Sandison, “Virologic suppression in nevirapine-exposed HIV-infected infants initiating antiretroviral therapy in rural Uganda,” *Journal of Tropical Pediatrics*, vol. 58, pp. 194–199.