

**FACTORS INFLUENCING PATIENTS' RETENTION IN HIV CHRONIC CARE  
HEALTH FACILITIES IN NAKURU COUNTY**

**QABALE NURA ABAGUDO**

**A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENT FOR THE CONFERNMENT OF THE DEGREE OF MASTER OF  
SCIENCE IN HEALTH SYSTEM MANAGEMENT OF KENYA METHODIST  
UNIVERSITY**

**SEPTEMBER, 2023**

**DECLARATION**

*“I declare that this research thesis is my original work and has not been presented for a degree or any award in any other university.”*

Signature ..... Date: .....

Qabale Nura Abagudo

HSM-3-6357-3/2014

**Supervisors’ Recommendation**

*“This thesis has been submitted for examination with our approval as university supervisors”*

Signature ..... Date: .....

Prof. Wanja Mwaura-Tenambergen. PhD

Kenya Methodist University

Signature ..... Date: .....

Lillian Muiruri

Kenya Methodist University

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## **DEDICATION**

The thesis is dedicated to my husband and uncle, Prof. Jaldessa, for their continuous backing and support as I pursued my academic goals.

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## ABSTRACT

Human Immunodeficiency Virus /Acquired Immunodeficiency Syndrome (HIV/AIDS) has remained a threat to global public health. WHO says that globally, 39 million people were living with HIV, with 1.3 million newly infected in 2022 and another 40.4 million having succumbed to it since then (World Health Organization [WHO], 2023). Sub-Saharan Africa is home to 54% of HIV-positive people, and Kenya was ranked third in Africa in 2019. Nakuru is one of the four counties in Kenya with the highest number of new infections, with 15% Elimination of Mother-to-Child Transmission (EMTCT) rates in 2022. Antiretroviral Therapy (ART) greatly decreased mortality and morbidity among people living with HIV; however, patients are not kept on care to achieve viral suppression. This study therefore sought to determine the factors influencing patients' retention in HIV chronic and care health facilities in Nakuru County. The study adopted a descriptive cross-sectional design to investigate the effect of socioeconomic, patient health condition, service delivery, and psychosocial factors on retention in Nakuru County health facilities. The target population was 2,963 people who had been booked for care during the study period. The sample size was 341 based on Morgan's table. The non-probability method was used to select clients as they arrived for their clinical appointments. For the defaulters, simple random sampling was used, where patients were selected from clinical appointments diaries. Patients at the health facility filled out the questionnaires, while the defaulters with valid phone contacts were interviewed over the phone. Descriptive statistics and binary logistic regression were the main methods of analysis. SPSS version 26 was used to analyse quantitative data. The results established significant relationships between study variables and care retention in Nakuru County facilities. For socioeconomical factors, male patients were 1.2561 times more likely to miss appointments than females, and those living with their sexual partners had a higher chance of missing appointments than singles. Being 40-49 years old or a casual labourer was 0.779 and 0.998 times less likely to miss appointments, respectively. The odds of missing appointments decreased as one's education level increased. For health conditions, the odds of missing an appointment reduce as patients progress to the next stage of HIV-related illness. For service delivery factors, patients were 2.452 times more likely to miss appointments in facilities where health workers were unfriendly; chances of missing appointments increased as time taken in and out of the facility increased; and those with difficulties getting off days to seek medical care were 1.111 times more likely to miss appointments. For psychological reasons, those who never disclosed their HIV status were 1.787 times more likely to miss appointments compared to those who disclosed their status. The study recommends that HIV prevention and care programs should take a multifaceted approach. The concentration should be on service providers' attitudes towards PLHIV, service accessibility, and quality in chronic care facilities. County governments should ensure full implementation of policies prohibiting stigmatisation of HIV patients seeking care in health facilities. Future research should consider targeting other tiers and counties.

## TABLE OF CONTENTS

<b>DECLARATION</b> .....	<b>II</b>
<b>COPYRIGHT</b> .....	<b>III</b>
<b>DEDICATION</b> .....	<b>IV</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>V</b>
<b>ABSTRACT</b> .....	<b>VI</b>
<b>LIST OF TABLES</b> .....	<b>IX</b>
<b>LIST OF FIGURES</b> .....	<b>XI</b>
<b>ABBREVIATIONS AND ACRONYMS</b> .....	<b>XII</b>
<b>CHAPTER ONE</b> .....	<b>2</b>
<b>INTRODUCTION</b> .....	<b>2</b>
1.1 Background of the Study .....	2
1.2 Statement of the Problem.....	5
1.3 Purpose of the Study .....	7
1.4 Study Objectives .....	7
1.5 Research Hypotheses .....	8
1.6 Study Justification.....	8
1.7 Study Limitations.....	10
1.8 Delimitations of the Study .....	11
1.9 Significance of the Study .....	11
1.10 Assumption of the Study.....	12
1.11 Operational Definition of Terms.....	12
<b>CHAPTER TWO</b> .....	<b>14</b>
<b>LITERATURE REVIEW</b> .....	<b>14</b>
2.1 Introduction.....	14
2.2 Socioeconomic Factors .....	18
2.3 Patients' Health Condition.....	21
2.4 Health Service Delivery Factors .....	23
2.5 Psychosocial Factors .....	26
2.6 Theoretical Framework.....	29
2.7. Conceptual Framework.....	33
<b>CHAPTER THREE</b> .....	<b>34</b>
<b>RESEARCH METHODOLOGY</b> .....	<b>34</b>

3.1 Introduction.....	34
3.2 Study Site.....	34
3.3 Research Design.....	35
3.4 Target Population.....	35
3.5 Sample Size Determination and Sampling Procedure .....	36
3.6 Inclusion Criteria and Exclusion Criteria .....	38
3.7 Instrumentation .....	38
3.8 Operational Definition Of Variables.....	41
3.9 Data Analysis And Management .....	41
3.10 Ethical Considerations .....	43
<b>CHAPTER FOUR.....</b>	<b>44</b>
<b>RESULTS AND DISCUSSIONS .....</b>	<b>44</b>
4.1 Introduction.....	44
4.2 Socioeconomic Factors .....	46
4.3 Patients Health Condition .....	52
4.4 Health Service Delivery .....	54
4.5 Psychosocial Factors .....	60
4.6 ART Care Retention .....	69
4.7. Hypothesis Testing.....	73
4.8. Regression Analysis.....	84
<b>CHAPTER FIVE .....</b>	<b>96</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>96</b>
5.1 Introduction.....	96
5.2 Summary of Findings.....	96
5.3 Conclusions.....	100
5.4 Recommendations.....	101
<b>REFERENCES.....</b>	<b>103</b>
<b>APPENDICES .....</b>	<b>114</b>
Appendix I: Informed Consent .....	114
Appendix II: The Study Questionnaire .....	116
Appendix III: Kemu Letter .....	123
Appendix IV: NACOSTI Research License .....	124
Appendix V: Map of Kenya.....	125

## LIST OF TABLES

Table 1.1 The Nakuru County 12-month HIV Care Retention in 2018.....	7
Table 3.1 The Nakuru September-October 2021 Clinical Care Turn Up for the Selected Facilities.....	36
Table 3.2 Proportionate Distribution Sample Size Determination .....	37
Table 3.3 The Number of Patients Interviewed per Facility.....	37
Table 3.4 Operational Definition of Variables .....	41
Table 4.1 Response Rate.....	44
Table 4.2 Reliability Tests .....	45
Table 4.3 Socioeconomic Factors .....	46
Table 4.4 ART Adherence .....	48
Table 4.5 ART Literacy .....	51
Table 4.6 Mode Of Testing and Who Stages at Enrolment .....	52
Table 4.7 Patients' Perception of Health .....	53
Table 4.8 Healthcare Provider's Attitude .....	55
Table 4.9 Communication Quality.....	56
Table 4.10 Organization Access .....	57
Table 4.11 Geographical Access.....	58
Table 4.12 Patients' Perception of Healthcare Services .....	59
Table 4.13 Disclosure of HIV Status .....	61
Table 4.14 Reasons for Non-Disclosure .....	62
Table 4.15 Partner HIV Status .....	63
Table 4.16 Stigma and Social Support from Family Members .....	64
Table 4.17 Social Responsibility .....	65
Table 4.18 Use of Other Drugs .....	66

Table 4.19 The Impact of Other Drug Use on ART Adherence .....	67
Table 4.20 ART Storage .....	68
Table 4.21 Patients' Perception of HIV/AIDS .....	69
Table 4.22 Adherence to Clinical Appointments.....	70
Table 4.23 Reasons for Missed Appointments .....	71
Table 4.24 Reasons for Stopping Coming (Defaulters).....	72
Table 4.25 Socioeconomic Factors Influencing the Retention of Patients in HIV Care	85
Table 4.26 Relationship Between Mode of Testing, who Stages and their Retention in hiv Chronic Care Facilities .....	88
Table 4.27 The Influence of Health Service Delivery on Patients' Retention in HIV Care in Nakuru County.....	91
Table 4.28 The Influence of Psychological Factors on Patients' Retention in HIV Chronic Care Facilities in Nakuru County .....	94

## LIST OF FIGURES

Figure 2.1 Implementation Cascade for the Continuum of Care .....	16
Figure 2.2 WHO Clinical Staging of HIV Disease in Adults, Adolescents and Children	23
Figure 2.3 The Information Motivation Behavioural Skills Model of Health Behaviour	31
Figure 2.4 Andersen-Newman Framework for Health Services Utilization.....	32
Figure 2.5 The Anderson Model of Healthcare Utilization .....	32
Figure 2.6 Conceptual Framework .....	33

## ABBREVIATIONS AND ACRONYMS

<b>AIDs</b>	Acquired Immune Diseases
<b>ART</b>	Antiretroviral Therapy
<b>CASCO</b>	County AIDs and STI Coordinator
<b>CASG</b>	Community Adherence Support Group
<b>CASG</b>	Community Adherence Support Group
<b>CHRIO</b>	County Health Records and Information Officer
<b>DHIS</b>	District Health Information System
<b>GOK</b>	Government of Kenya
<b>HCP</b>	Health Care provider
<b>HIS</b>	Health Information Systems
<b>HIV</b>	Human Immuno-Deficiency Syndrome
<b>HMIS</b>	Health Management Information System
<b>HTC</b>	HIV Testing and Counselling
<b>KNBS</b>	Kenya National Bureaus of Statistics
<b>MDGs</b>	Millennium Development Goals
<b>MOH</b>	Ministry of Health
<b>NCRH</b>	Nakuru County Referral Hospital
<b>PHHIV</b>	People living with HIV
<b>PMTCT</b>	Prevention of Mother to Child Transmission

<b>POC</b>	Point of Care
<b>RHIS</b>	Routine Health Information Systems
<b>SCASCO</b>	Sub-County AIDs and STI Coordinator
<b>SCHRI</b>	Sub-County Health Records and Information Officer
<b>SOP</b>	Standard Operating Procedure
<b>SPSS</b>	Statistical Package for Social Science
<b>WHO</b>	World Health Organization

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background of the Study**

The Human Immuno-Deficiency Virus (HIV) has posed serious health and development challenges in the world. Looking at the global picture, 39 million people were living with HIV, and another 40.4 million had succumbed to AIDS-related illnesses since its onset by the end of 2022. In 2022 alone, 630,000 people died, with 1.3 million others acquiring the disease (World Health Organization [WHO], 2023). Nevertheless, many people living with the virus and those at risk of getting infected have no access to preventive, treatment, and palliative care, and there is still no cure despite the endless global effort (Bulsara et al., 2018). The number of HIV-positive children on ART at the global level was only 53% in 2019 (WHO, 2020). Sub-Saharan African hosts 54 % of people living with HIV, despite being less than 15% of the world's population (Joint United Nations Programme on HIV and AIDS [UNAIDS], 2019).

The world is far from saving the future generation despite the endless effort, as the HIV daily infection number of children hits 880, with 310 deaths daily attributed to ART inaccessibility (United Nations International Children's Emergency Fund [UNICEF], 2020). Kenya, where we are living, was number four on the list of high burden countries on the African continent with 1.5 million people living with the disease at the end of 2015 (National AIDS Control Council [NACC], 2016). The country recently joined the third-largest epidemic country in the world alongside Uganda and Mozambique as the number of people living with the disease rose to 1.6 million and annual AID-related mortality hit 25,000 (Kenya National Bureau of Statistics [KNBS], 2023). In 2018, the epidemic accounted for 29% of adult mortality, 20% of maternal deaths, and 15% of deaths among children under five years of age. Nakuru

County was among the four counties leading with new infections in the year (NACC, 2018). The county also recorded highest number infection among the adolescents in 2021 (National Syndemic Diseases Control Council [NSDCC], 2022)

The antiretrovirals have converted HIV/AIDS from a monster killer to a chronic, manageable condition. The global number of new infections declined by 11% (1.9 million to 1.7 million) among adults and by 47% (300,000 to 160,000) among children in 2016 since 2010. In the eastern and southern Africa regions, new HIV cases too went down by 29%, and AIDS mortality in 2016 was 42% fewer compared to 2010 (UNAIDS, 2019). Since 2010, the global annual deaths have fallen by 51%, and the number of new cases of HIV has also declined by 38% in 2019 (UNAIDS, 2020b). The use of ART drugs as prophylaxis for HIV at-risk individuals was highly effective in preventing HIV transmission within HIV sero-discordant couples, showing almost an elimination in a high-risk population in Kenya (National AIDS and STI Control Programme [NASCOP], 2013).

To end the AIDS epidemic and save a future generation, WHO instructs countries to continue fast-tracking HIV prevention, identification, and treatment to achieve the 2020 global goal of bringing down the number of AIDS-related mortality to less than 500 000 and increasing the number of people on ART from 18.2 million in mid-2016 to 30 million in 2020. The recommendation was to start everyone diagnosed with HIV infection on treatment immediately. This approach would greatly help in achieving the 90–90–90 target meant to fast-track ‘the test and treat’ strategy as well as the Sustainable Development Goals target of universal health coverage. If followed to the letter, the stated strategy could prevent deaths of 21 million people and prevent 28 million others from getting infected by the year 2030 (WHO, 2016).

However, despite all the efforts put in place to eliminate new infections and reduce mortality by increasing ART coverage, HIV/AIDS remains a global public health threat. In 2019 alone, the number of new cases reached 1.7 million, which is three times more than the global target. 690,000 mortalities were also reported in the same year, with only 25.4 million out of the total of 38 million infected people accessing ART. Besides, the current COVID-19 pandemic may further impend the HIV progress if it continues interrupting HIV weekly services (UNAIDS, 2020a). The Sub-Saharan African regions contributed 59% of the newly HIV-infected women and girls in 2019, and 24% of the newly infected were young women, where 4500 adolescent girls and women were becoming HIV-infected weekly. In Africa, only 47% of the infected population had access to ART in 2015 (WHO, 2016).

The challenge is to contain people living with HIV on ART to achieve viral suppression, and this is posing a threat to the public. In one of the previous studies, 59% of HIV patient attrition was attributed to lost-to-follow up (LTFU), where deaths contributed 41% (Fox & Rosen, 2010). In Kenya, only 64% of HIV-infected people were accessing treatment in 2016, despite the continuous call to put at least 90% of the infected population on treatment (UNAIDS, 2018). The Pumwani hospital retained only 66.8% of its participants, and the retention was better among women compared to men (Rono, 2018). Thus, elimination of new infections may not be achieved unless retention and viral suppression of those tested and started on ART are focused. Therefore, a rapid expansion of the test and treat HIV programs without improving retention on care, more so, for the newly tested and treated may be futile. Besides, it may also lead to a waste of limited public resources and unfavourable health outcomes like HIV drug resistance new virus (WHO, 2016). Therefore, the health system should be robust enough to address the factors determining engagement in a chronic care model to allow expansion of high-quality treatment, retain people on care, and achieve a pull of a virally suppressed population.

The HIV chronic care model comprises a cascade of activities starting with the positive HIV test result through registration and enrolment into an HIV care clinic, retention in the clinic, adherence to treatment and achievement of low serum viral copies (McNairy & El-Sadr, 2012). Retention, as the third activity in the chronic care model, is the patient's regular visit to a health care facility after initial enrolment in the system and onward adherence to the clinical appointments as well as ART treatment to achieve viral suppression. Retention is significant in reducing HIV-related morbidity and mortality, the incidence of new infections, and the development of ART resistance (Janssen et al., 2015).

Unfortunately, many patients discontinued care or stopped the treatment, more so, within the first few months of the treatment. 54% retention rate among patients receiving peer-delivered linkage case management (MacKellar et al., 2022). Previous studies revealed that only 20-30% of HIV-positive retained in care to start ART (WHO, 2011). Early mortality following ART initiation was higher in low-income, resource-limited countries compared to developed countries (Braitstein, 2006). In previous studies, patients with HIV faced many hurdles in linking to and retaining on HIV care due to various reasons. The main barriers mentioned included fear of antiretroviral medications and death, psychiatric disease, substance abuse, stigma associated with HIV, and the health care system. Thus, this study will explore the extent to which each of these factors affects retention in HIV care.

## **1.2 Statement of the Problem**

HIV/AIDS is far from ending despite all the efforts, as the number of new infections rises in some countries after the initial decline. The daily infection rate for children was 880, with 310 deaths caused by ART inaccessibility (UNICEF, 2019). Sub-Saharan Africa is home to 54% of HIV-positive people (PLHIV) (UNAIDS, 2022). Kenya was ranked third in Africa, with 1.6 million PLHIV and 25,000 deaths in 2019 (KNBS, 2023). The EMTCT rate is at

10.8% in Kenya, against the target of 5%. Nakuru is one of the four counties with the highest number of new infections 15% EMTCT rates, and the county recorded the highest number of new infections among adolescents in 2021 (NSDCC, 2022).

ART greatly decreased mortality and morbidity among PLHIV, but people living with HIV are not kept on care to achieve viral suppression. Only 67% (25.4/38) of infected people were accessing ART against the WHO's 95% target (UNAIDS, 2020a). ART retention in Kenya was 79% (KNBS, 2023). Yet, the 2015 African regional report estimated treatment coverage at 47% (WHO, 2016) with a slight increment to 12.6 in 2017 (UNAIDS, 2019). The situation was not different in Kenya either, as only 64% of people living with HIV had access to treatment in 2016 (Geng, 2016). Only 66.8% of the participants retained on care at Pumwani hospital in Nairobi (Rono, 2018). In Nakuru County, the 12-month ART cohort was way below the recommended WHO percentage of 90 in 2018. USAID fears that the presence of the COVID -19 pandemic and increased economic and humanitarian crises place the HIV response under threat. (UNAIDS, 2022). In a country like ours with rising social problems like drug abuse and gay numbers, combined with reduced funding on top of other above-mentioned issues, the effort to fight the disease is further frustrated.

Therefore, expansion of the test and treat HIV programmes, especially for those newly tested and treated, without addressing the issues surrounding patients' retention is likely to undermine the effort to achieve the 90-90-90 target on HIV as well as the Sustainable Development Goals of universal health coverage (WHO, 2016). It is against this stated background that this study seeks to explore the potential determinates of retention to effectively address the challenges surrounding the timely and continuous commitment of HIV in the chronic care of those tested in Nakuru County. The study is anchored on the service delivery pillar.

**Table 1.1***The Nakuru County 12-month HIV care retention in 2018*

Row Labels	ART Net Cohort at 12 Months (2018)	On ART Therapy at 12 months	% Retention
Gilgil	410	325	79%
Kuresoi North	168	135	80%
Kuresoi South	400	234	59%
Molo	425	327	77%
Naivasha	1058	792	75%
Nakuru East	826	635	77%
Nakuru North	284	203	71%
Nakuru West	1613	1189	74%
Njoro	464	263	57%
Rongai	294	186	63%
Subukia	108	90	83%
Grand Total	6050	4379	72%

*Source: District Health Information System (DHIS2)*

### **1.3 Purpose of the Study**

The study established a relationship between socioeconomic, patients' health condition, service delivery, and psychosocial factors, informed by research and theory, that affects patients' retention in HIV chronic care in Nakuru County, and the findings will be shared with stakeholder to improve retention in care.

### **1.4 Study Objectives**

#### **1.4.1 Broad Objective**

To examine factors influencing patient's retention in HIV chronic care clinics in Nakuru County.

### **1.4.2 Specific objectives**

- i. To assess the socioeconomic factors influencing the retention of patients in HIV care in Nakuru County.
- ii. To examine the influence of the patient's health condition on retention in HIV care in Nakuru County
- iii. To evaluate the influence of health service delivery on patients' retention in HIV care in Nakuru County.
- iv. To establish the influence of psychosocial factors on the retention of patients in HIV care in Nakuru County.

### **1.5 Research Hypotheses**

The following hypotheses are formulated to guide the implementation of the study:

$H_0 1$ : Socioeconomic factors do not influence patients' retention in HIV chronic care facilities in Nakuru County.

$H_0 2$ : Patients' health conditions do not influence their retention in HIV chronic care facilities in Nakuru County.

$H_0 3$ : Health service delivery factors do not influence patients' retention in HIV chronic care facilities in Nakuru County.

$H_0 4$ : Psychosocial issues do not affect the retention of patients in HIV chronic care facilities in Nakuru County.

### **1.6 Study Justification**

The retention of HIV-positive patients is critical to HIV management and epidemic control. Retention of patients on antiretroviral therapy brings down the amount of virus in the body, and by doing so, it restores immunity and prevents further destruction of the system, thus

reducing morbidity and mortality incidence among people living with HIV (PLHIV). Improvement in retention important because the suppression of HIV prevents onward transmission of the virus to others through both vertical and horizontal means (Cairns, 2020). It is worthy to note that virally suppressed populations indirectly contribute to countries` economic development by cutting down on HIV-related costs (Githagui, 2014). Universal antiretroviral treatment aims to reduce global HIV-related mortality to less than 500 000 in 2020, and double the number on ART to reach 30 million in 2020 up from 18.2 million in mid-2016 (WHO, 2016). However, despite the benefits, a considerable number of patients do not remain on HIV care to utilize the services after the initial diagnosis and ART initiation in most settings.

A search for theories to guide research in HIV care retention found no theory that fully addressed challenges that patients go through to retain on care. However, the Information Motivation Behavioural Skills model (IMB) developed by Fisher and Fisher (1992) explained the psychological factors affecting individuals` health behaviours. Several theories of health behaviour suggest intellectual factors influencing HIV risk and prevention, including information about HIV, attitudes, and individual intentions (Ajzen & Fishbein, 1980). Utilization of healthcare services is affected by three underlying forces: the predisposing factor (age, sex, and race) the enabling factor (family and community support), and the need (both the actual and perceived need for health care services). Factual findings will be discussed, demonstrating how the above concept might be used to explain some of the critical patterns in the utilization of care services (Andersen, 1995).

Most of the existing research materials are old, done pre-universal ART era, focused on socioeconomic and psychological factors and failed to take into account the retention challenges that come with ART initiation at early stages of the disease, `test and treat`.

However, Chinyandura stated that patient-centered approaches, where patients are involved in their management, make them feel worthy and motivate them to take charge of their health. (Chinyandura et al., 2022). This study incorporates the complex socioeconomic, patients' health condition at enrolment, service delivery, and psychosocial variables found in the above theories in improving ART care retention that will contribute to the ultimate goal of ending new HIV/AIDS cases.

### **1.7 Study Limitations**

This study covered only tier three and four to avoid the dynamics that come with referral hospitals due to high patient mobility. On-the-phone data collection posed a limitation by itself, as some respondents denied their identities in fear of accidental disclosure. Not all respondents were reachable on the phone for data collection, limiting research to only reachable ones; others hanged off the call in the middle of the conversation, leaving incomplete questionnaires that were excluded for the analysis. Some respondents diverted from the questions and gave their personal life challenges, consuming time before gathering the required information, while others gave unverifiable false information. That taken into consideration, the researcher explained the purpose of the study and reassured them of confidentiality before proceeding to the questions. Additional demographic information was pulled from the hospital records to reduce the number of items. The reliance on self-reported information were limitation by itself because the opinions given on the questionnaires was taken at face value.

There were respondents who may have exaggerated the extent to which service provider, patients' health condition, socioeconomic, psychosocial, and service delivery factors influenced the retention in HIV care clinics as they were not sure of the person, they were disclosing information to. However, the researcher emphasised building rapport and ensuring

confidentiality before proceeding to the questions to overcome the perceived challenges as she moderates the conversation. To limit biases, the researcher explained the purpose of the study and avoided leading questions or ambiguous questions. Finally, the research worked with the expert clients (peers) in those facilities to overcome the possibility of the language barrier.

### **1.8 Delimitations of the Study**

The study covered only Nakuru County, and only those enrolled in tier three, and four hospitals were eligible, hence missing out on challenges affecting retention in large facilities. Only patients with phone contacts in their files were included in the study, leaving out the more impoverished people who cannot afford to buy phones and those out of reach. The study relied on self-reporting, which is bound to be biased, sometimes affecting the accuracy and reliability of the research findings. While this is a significant weakness in surveys, it is not a fatal flaw. The sample size consisted of diverse groups of respondents who have different perspectives regarding the health system; such a difference would also give additional insights into the differences in the reasons for failure to seek health care.

### **1.9 Significance of the Study**

This study explored the relationship between socioeconomic, patients' health, service delivery, and psychosocial variables that influence patients' retention in HIV care in Nakuru County. The study findings may help the government and other agents of change like non-governmental organizations, civil society, peers, and research institutes to improve HIV care retention based on the patients' feedback. It also further suggests other possible studies that need to be carried out regarding the subject matter.

### **1.10 Assumption of the Study**

The study was grounded on the following assumptions:

That all respondents will cooperate and give honest responses to the questions asked. That socioeconomic, patients' health condition, service delivery, and psychosocial factors influence patients' retention in HIV care in Nakuru County. The study also assumed that all the selected samples were genuine and that they would be available to respond to the research questions.

### **1.11 Operational Definition of Terms**

**Attrition:** Discontinuation from care for any reason, including deaths, loss to follow-up, and a break from ARV medications; or remaining in care but transferring to another HIV care facility, whether it is a self-transfer or an official transfer.

**Defaulter:** A defaulter is a patient who fails to appear within twenty-24 hours of the clinical appointment.

**Enrollment HIV:** Defined as entry into an HIV care clinic following HIV diagnosis or a visit to a health facility to get HIV services having received HIV positive result.

**Health service delivery factors:** these constitute the health workforce, infrastructure, medical supplies, and medical financing. The most critical function of the health system is to ensure access to and availability of health services that meet the minimum quality of care.

**HIV cascade/continuum:** Sequential steps a client undergoes from HIV testing to viral loads

**Linkage:** Linkage is the initial step in continuum care. It is defined as the process of connecting persons diagnosed with HIV into HIV primary care and successfully enrolling them into care.

**Lost to follow-up:** Lost follow-up is a failure to turn up for clinical care for 90 days from the last appointment date. Patients are labelled lost to follow-up after all the attempts to establish their whereabouts have failed.

**Patients' health condition:** This refers to the patients' health status at enrollment based on the WHO classification.

**PLHIV:** According to the World Health Organization, **PLHIV** includes everyone who is infected with HIV at a given time in a given locality based on estimates.

**Psychological factors:** These are factors that influence the health behaviour of patients. The action can be adverse, where one turns to drinking more due to stress, or positive, where one decides to adhere to treatment, depending on one's perception of health and beliefs in one's ability to make decisions.

**Retention in HIV Care:** This is continuous engagement in care and adherence to treatment based on missed appointments or medical visits attended at regularly defined intervals.

**Socioeconomic factors:** According to the American psychological Association, social economics involves many things, including education, income, financial security, attainment financial and social status perceptions. These factors affect group behaviour in society, influencing their physical and psychological health outcomes. Different socioeconomic groups may have different priorities regarding health values when it comes to directing their funds.

**Test and Treat:** This is a new strategy recommended by the WHO to test the at-risk population to identify HIV-positive people for early ART initiation to curb HIV onward transmission and ultimately eliminate new HIV cases.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

The chapter highlights the challenges that surround the continuum of HIV care at the global level as well as in Kenya, the significance of retaining patients in HIV care and treatment, and variables influencing retention in HIV treatment, focusing on socio-economic, patients' health conditions, service delivery, and psychosocial factors.

#### **2.1.2 Dynamics of the HIV/AIDS Epidemic and Response**

The Human Immuno Deficiency Virus (HIV) has posed serious health and development challenges in the world. Since its onset, 39 million people have been infected, and another 40.4 million have succumbed to AIDS-related diseases (WHO, 2023). Nevertheless, there are still many people living with the virus, and those at risk of getting infected have no access to preventive care or treatment despite the global effort (Bulsara et al., 2018). In 2019 alone, 690,000 mortalities were reported as the number of new cases reached 1.7 million, which is three times more than the global target. Sub-Saharan Africans contributed 59% of the new HIV-infected women and girls in the year (UNAIDS, 2020b).

Kenya, as a country, reported its first case of HIV in 1984, and by the mid-1990s, the disease was at the top of the list of the leading cause of deaths in the country, straining the economy and the health sector (Ministry of Health [MOH], 2014). The country had 1.6 million people living with the disease and 25,000 AIDs-related mortality in 2018. The country was ranked the 3<sup>rd</sup> in the list of disease-burden African countries (KNBS, 2023). Nakuru County is among the four counties leading in the number of new infections in 2018 and even recorded the highest number of infections among adolescents in 2021 (NSDCC, 2022).

In terms of treatment progress, good progress was noted following the ART advancement. The global number new infections declined by 11% (from 1.9 million to 1.7 million) among adults. and 47% (300,000 to 160,000) among children in 2016 since 2010 and by 38% since 2001. For children, the result was even more impressive, as the figures dropped by 58% in 21 mainly affected African countries, which was significant progress towards the 2020 and 2030 targets to end the AIDS epidemic (UNAIDS, 2015). The global annual AIDS-related deaths went down by 48% from a peak of 1.9 million peaks in 2005 to 1.0 million in 2016, as the Southern and Eastern Africa recorded a 29% reduction in new HIV cases and 42% fewer AIDS-related deaths in the year compared to 2010 (UNAIDS, 2017). In Kenya, the disease prevalence declined to 6.7% in 2003 from peaks of 10.5% in 1995-96, though it has remained relatively stable since then (NACC, 2014).

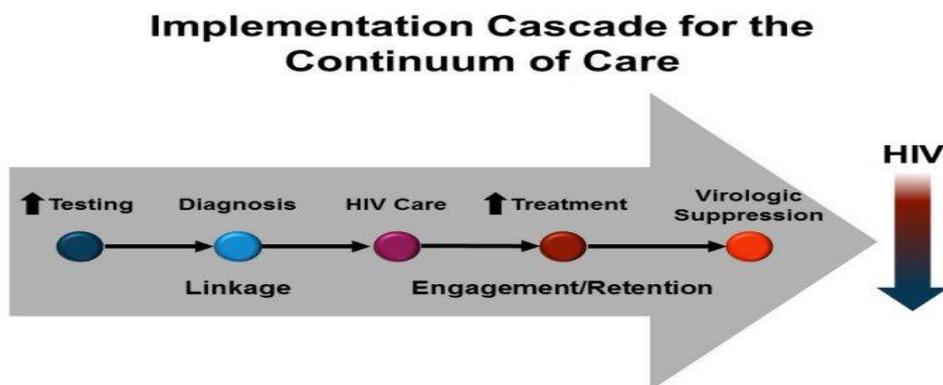
However, even after tremendous success in ART at the global level, rise in number of new infections is noted 2022 UN warns. Only 67% million infected people were accessing ART (UNAIDS, 2020a). In Africa, only 47% of the infected population was accessing ART in 2015 (WHO, 2016) and 64% of people living with HIV in Kenya were accessing treatment in 2016 (Geng, 2016). The progress may be impeded further by the current hard economies, social problems like drug abuse, and COVID-19 pandemic if it continues interrupting HIV services. The high mortality rate was recorded following ART initiation as patients started treatment later in the disease progression (UNAIDS, 2020). Unfortunately, the shifting global context interacts in profound and complex ways, contributing to an unequal world where economic and social inequality are on the rise, with over 75% of the population in developing countries living in more unequal societies than they did in 1990. Due to financial imbalances constituted by unequal access to power, education, and healthcare, women in rural areas are three times more likely to die in childbirth than their urban counterparts. Socioeconomic inequality is closely linked to HIV prevalence across regions (UNAIDS, 2017).

### 2.1.2 Continuum of HIV care and Patient Retention in Care

The public health priority has shifted, and the focus now is to diagnose and start the treatment early before the immune system gets destroyed. Globally, only 67% of infected people were accessing ART, against the WHO 95% (UNAIDS, 2020a). Despite the global fight against HIV/AIDS, the success of HIV programs is not forthcoming as expected due to patient attrition along the continuum. The statistics show that many HIV-positive people either delay treatment initiation or fall out of care along the way. Therefore, the implementation of any HIV programmes without addressing the variables that influence patients' retention on care will only waste resources. The HIV care continuum involves a number of steps that need to be followed for one to achieve viral suppression. These steps include diagnosis, linked to care, initiation and retained on treatment, and achieved viral suppression (NACC, 2018).

**Figure 2.1**

*Implementation Cascade for the Continuum of Care*



*Source: Moupali Das, MD, MPH.*

As mentioned above, all the steps of the entire care continuum must be followed for any substantial improvement in health outcomes to be achieved for the individuals and prevent transmission to (McNairy & El-Sadr, 2012). Early antiretroviral therapy (ART) has emerged to be of greater benefit to patients compared to late treatment. This is because ART improves

patients' outcomes (morbidity and mortality) by restoring and preventing further destruction of the immune system as well as reducing the onward transmission (NASCO, 2016). The WHO proposed expanded HIV testing and early treatment strategies could even further reduce HIV transmission and help in ending the HIV epidemic (WHO, 2016). However, low engagement and retention in care for HIV-infected individuals will ultimately pose challenges the achievement of optimal treatment outcomes (Gardner et al., 2011).

### **2.1.3 Significance of Retention in HIV Care**

Several studies have looked at the factors linked to non-retention. For instance, previous systematic reviews have focused on different populations [young persons, females, prisoners, pregnant women, and racial and ethnic minorities, physically impaired, among others] (Mugavero et al., 2013). Results have shown that adherence and retention on ART treatment have the potential to increase life expectancy. The studies in low-income countries revealed that early ART (ART started at early stages of the disease) improves life expectancies from 9.4 to 17.2 years, while with late treatment strategies, life expectancies range between 6.8 and 14.9 years (Johansson et al., 2010). Thus, scaling up ART and prevention measures to reach all people living with HIV can help save the lives of 21 million and prevent 28 million new infections by 2030 (UNAIDS , 2016).

### **2.1.4. Determinants of HIV Retention**

HIV care retention begins from the time the patient is enrolled in an HIV care clinic and continues through the initiation and retention of the ART. Some of the strategies to help with retention included Community ART Group (CAG). Here, patients form a group consisting of six members based on the locality and nominate one member during each clinical visit to pick drugs for others, presenting their clinical appointment cards for record purposes. This arrangement save patients time and money as a member visits the clinic once or twice a year,

during which a viral load sample is taken for the visiting member. So, the arrangement is made in such a way that the viral load- eligible member visits the facility. Such programs depend on patients' needs, and their views are taken into account (WHO, 2011). Some groups, like the street families, may need a different approach like DOT (directly observed therapy) at the community level done by community health volunteers or at the facility by the health service providers.

## **2.2 Socioeconomic Factors**

### **2.2.1 Age**

In a study in China, more than half of participants faced delayed entry into HIV care, of whom 52% were aged 18–25 and 48% were aged 26–35 (Liu et al., 2016). Being young was found to be a barrier to linkage and retention (Koirala et al., 2017). Being an adolescent was found to be a barrier to linkage to care (Maulsby et al., 2020). Sub-Saharan African literature review also associated pre-ART retention with age. It was found that retention was lower among younger individuals, where being old was positively associated with retention in pre-ART (Plazy et al., 2015). In Uganda, a cohort study revealed that 31.5% did not enrol in HIV care and youthful age (15-24 years) being a contributing factor to none enrolment (Nakigozi et al., 2013). ART retention for an adolescent was found to be 65%, and the younger the adolescent (10-14 years), the better the result (Okoboi et al., 2016). In one of the studies done in western Kenya, ART retention was better among older adults compared to their younger counterparts in care at 12, 24, and 36 months (Kiplagat et al., 2018). Likewise, viral suppression rates for adolescents aged 10-19 years were below 75% in 2018 compared to adults of 25 years and above that recorded 90% in Kenya, according to the NASCOP dashboard. However, the above was contradicted by a study done in Rwanda that revealed no association in enrolment by age and sex but instead firmly attributed the difference to study site and point of care, where VCT enrolled slightly higher (43.8%) than outpatients (29.6%)

(Franse et al., 2017). Similarly, an earlier study done at Kijabe Hospital revealed no variation in age or sex at the commencement of the ART treatment (Okoboi et al., 2016).

### **2.2.2 Sex**

Previous studies have shown varying retention among people of different genders. In Vietnam, male gender was associated with non-retention in HIV care in the pre-ART era (Family Health International [FHI360], 2012). Sex was found influence retention in HIV care before ART eligibility in Sub-Saharan Africa. According to the study, retention was lower among men (Plazy et al., 2015). In a cohort study, male gender was associated with non-enrollment in HIV care clinics after the initial diagnosis (38%) compared to women in Uganda (Nakigozi et al., 2013). In Kenya, treatment successes were positively associated with female gender than their male counterparts (Okoboi et al., 2016). Though sex was not significantly associated with pre-ART linkage in Rwanda (Franse et al., 2017).

### **2.2.3 Marital status**

The risk of HIV infection was higher among married couples and even higher among widows (Tlou, 2019). In 83.6% of HIV-infected Kenyans living in married or cohabitating couples, neither partner knew their HIV status (Kaiser et al., 2011). Most of the data in this area is talks about risk of infection, and data on retention among married couples is limited.

### **2.2.4 Occupation**

According to the Collins dictionary, occupation is defined as something that one spends time doing, either for fun or for financial benefits. Appropriate health-seeking behaviours were found to be higher among civil servants (Latunji & Akinyemi, 2018). Both income (affordability) and education levels (a proxy of health education) affect healthcare-seeking behaviour among women in China (Zhang et al., 2009). The level of one's education affects the decision to seek help, and economic status affects value placed one one's health (Qasim

et al., 2014). The socioeconomic indicator was found to be the most critical factor influencing the health-seeking behaviour of individuals compared to age, gender, health condition, and income (Ahmed et al., 2005). The incentive was positively linked to retention as it lowers the rate of loss to follow-up (LTFU) and mortality (Maulsby et al., 2020). Both occupation and education levels were attributed to the inequality reported in accessing ART, treatment adherence, and outcomes. People of low socioeconomic status are likely to start treatment early, while their wealthy counterparts are likely to adhere and have better treatment outcomes (Luo et al., 2016).

### **2.2.5 Knowledge**

Knowledge is a powerful tool in decision-making regarding one's health (Brammer & Millington, 2003). The quality of the information given to the patient by the providers influences their treatment decision either way. It was noted that those who attain higher levels of education communicate better with their providers, likely make an informed decision, and take up responsibilities regarding their treatment (Gaston, 2013). Accessibility to trustworthy information and encouragement to use it are the keys to treatment success. Patient information, 'person-centred care, and patient empowerment improve adherence and retention on treatment (Brammer & Millington, 2003). Knowledge is associated with healthcare-seeking behaviour and adherence to treatment (Kiriazova et al., 2018).

Lack of accurate information was evident in another study where some participants cited confusion regarding medication timing (Holtzman et al., 2015). Illiteracy and being in rural habitats were also cited as barriers to linkage and retention (Koirala et al., 2017). Individual factors hindering adherence included the commitment to a child's health or age and understanding of HIV treatment itself, as well as preventing mother-to-child transmission (Layer et al., 2014). Poor adherence was associated with the loss to follow-up in ART, where

non-linkage and low retention were attributed to predisposing characteristics like information, attitudes, and opinions in western Kenya (Rachlis et al., 2016).

## **2.3 Patients' health condition**

### **2.3.1 WHO Stages**

HIV infection advances in stages and gets worse over time if not treated. WHO classified HIV/AIDS into four stages: 1 (acute HIV infection), 2 (chronic HIV infection), and 3 (acquired immunodeficiency syndrome). Patients-related variables, like health conditions like WHO stages, were found to be affecting care engagement and retention. Studies revealed that being healthy, being in the asymptomatic HIV stage, and having low value for one's health were likely to delay or discontinue care. On the other hand, personal nature, including caring about one's health and perceived support from family and HIV-positive peers, and deteriorating health, and fear of death, as well as the desire to live, were reported as facilitators of HIV care entry and ultimate retention (Amirkhanian et al., 2018).

Patients believed that mild illnesses did not need medical care and postponed hospital visitation until the condition worsened or failed to improve (Webair & Bin-Gouth, 2013). People utilize formal health institutions only for severe medical conditions (Adhikari & Rijal, 2015). Similarly, patients perceived needs and beliefs, as well as the value placed on their own health, influenced the subjective acknowledgement (Holtzman et al., 2015). Pre-ART retention was lower among the healthier population with high CD4s compared to sick patients with lower CD4s and other co-morbidities like TB and anaemia (Plazy et al., 2015). The majority of patients listed as lost to follow up in Uganda were in their early stages of the disease (Opio et al., 2019). Similarly, where good health status hindered HIV testing, a lack of trust in traditional medicine and belief in ART effectiveness facilitated it in Tanzania (Layer et al., 2014). Severe illness at care entry or ART initiation or full-blown HIV disease

at the ART start was found to be the principal predictor of attrition in Addis Ababa, Ethiopia (Mekuria et al., 2015).

### **2.3.2 Mode of testing**

WHO stated that the earlier people start ART, the better the health outcomes, as the treatment reduces viral load, morbidity, and mortality, and onward disease transmission both vertically and horizontally. It was believed that most people tested through voluntary counselling and testing (VCT) are in the early stages of the disease and tend to have low retention rates compared to those tested through provider-initiated testing (PITC). It was revealed that linkage was perfect among MPTCT, better for individuals who were tested through sexually transmitted infection clinics (STI) at 84.1% compared to those tested through VCT (Kranzer et al., 2010) HIV care retention was better among those tested through VCT compared to those tested through community-based and provider-initiated testing (PITC) (Johansson et al., 2021). In western Kenya, research demonstrated that patients that Patients tend to have differences in care retention over time based on the mode of testing (care entry points), according to Ampath.

**Figure 2.2**

*WHO Clinical Staging of HIV Disease in Adults, Adolescents and Children*

Adults and adolescents*	Children
<b>Clinical stage 1</b>	
Asymptomatic	Asymptomatic
Persistent generalized lymphadenopathy	Persistent generalized lymphadenopathy
<b>Clinical stage 2</b>	
Moderate unexplained weight loss (<10% of presumed or measured body weight)	Unexplained persistent hepatosplenomegaly
Recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media, pharyngitis)	Recurrent or chronic upper respiratory tract infections (otitis media, otorrhoea, sinusitis, tonsillitis)
Herpes zoster	Herpes zoster
Angular cheilitis	Lineal gingival erythema
Recurrent oral ulceration	Recurrent oral ulceration
Papular pruritic eruption	Papular pruritic eruption
Fungal nail infections	Fungal nail infections
Seborrhoeic dermatitis	Extensive wart virus infection
	Extensive molluscum contagiosum
	Unexplained persistent parotid enlargement
<b>Clinical stage 3</b>	
Unexplained severe weight loss (>10% of presumed or measured body weight)	Unexplained moderate malnutrition <sup>a</sup> not adequately responding to standard therapy
Unexplained chronic diarrhoea for longer than 1 month	Unexplained persistent diarrhoea (14 days or more)
Unexplained persistent fever (intermittent or constant for longer than 1 month)	Unexplained persistent fever (above 37.5°C, intermittent or constant, for longer than one 1 month)
Persistent oral candidiasis	Persistent oral candidiasis (after first 6 weeks of life)
Oral hairy leukoplakia	Oral hairy leukoplakia
Pulmonary tuberculosis	Lymph node tuberculosis
Severe bacterial infections (such as pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)	Pulmonary tuberculosis
Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis	Severe recurrent bacterial pneumonia
Unexplained anaemia (<8 g/dl), neutropaenia (<0.5 x 10 <sup>9</sup> /l) and/or chronic thrombocytopenia (<50 x 10 <sup>9</sup> /l)	Acute necrotizing ulcerative gingivitis or periodontitis
	Unexplained anaemia (<8 g/dl), neutropaenia (<0.5 x 10 <sup>9</sup> /l) or chronic thrombocytopenia (<50 x 10 <sup>9</sup> /l)

Source: WHO (2007)

## 2.4 Health Service Delivery Factors

### 2.4.1 Service Providers

Service providers are individuals trained to provide healthcare services, and in most communities, patients see these service providers as small gods. Because of that, the provider's behaviour towards these patients and how they relate to them can have a significant influence on their return to care. Negative attitudes of health care staff, corruption and scolding patients when they missed doses were among the barriers to continued treatment in some clinics in Vietnam (FHI360, 2012). In Russia, 75% of participants defaulted because they felt mistreated by providers, while others expressed dissatisfaction with the quality of the counselling, they received (Rachlis et al., 2016). The above finding was supported by

another study that linked ART non-adherence to patients perceived lack of attention from or empathy from the providers as well as providers failure to address their health care needs (Shabalala et al., 2018). Likewise, in Southern New England, the interpersonal level theme that primarily influenced treatment linkage, retention, and viral load suppression was the healthcare staff's competence and reaction towards patients, among others (Grau et al., 2017). Sub-optimal care was among the reasons for ART discontinuation, as cited by patients (Shabalala et al., 2018).

Staffing and administrative challenges were reported as barriers in the United States, where many programs experienced high staff turnover. Turnover among staff who had frequent direct participant contact was viewed as particularly problematic, given the importance of their relationships with participants and the community. Building the necessary skills and relationships took time and commitment, which compounded challenges when transitioning in new staff. Lack of clear communication regarding the associated cost of HIV treatment was also found to be caused by frictions between providers and patients (FHI360, 2012). The findings were the same in studies done in China, Tanzania, and Kenya. In China, the gays reported a lack of guidance, unfriendly clinic hours, distance and perceived discrimination from health care workers, disclosure concerns, fear of unknown barriers, and the stress of committing to an HIV clinic, among others (Liu et al., 2016).

Likewise, in Tanzania, patients cited healthcare workers rudeness and lack of information on their side blamed on the providers to guidance as barriers to treatment (Layer et al., 2014). Staff unprofessionalism in the clinics was found to be negatively influencing care retention in one of the studies (Opio et al., 2019). In Kenya, the research associated factors such as patient-provider relationship, limited counselling to patients or insufficient information by providers, health service provider availability, health facility-associated stigma, unfriendly

clinics, and lack of social support from peers were the factors reported to have been negatively influencing retention, among others (Rachlis et al., 2016).

#### **2.4.2 Access to Health Services**

Access to health services is all about the ease with which a patient gets the healthcare they need. The access is affected by both organizational structures and the geographical distance from the facility. The organizational structures influencing patients return to health facility are composed of the physical structure of the hospital, amenities, directional arrows, patient flows, and room labelling. Studies have proved that these factors determine the health-seeking behaviour of patients. A study done in one of the hospitals in Russia revealed that 90% of participants cited difficulties in accessing HIV services due to lack of choice when it comes to their providers. They also reported the frustration they go through in getting care, including frequent facility visits for lab work and long waiting hours at the hospital (Amirkhanian et al., 2018). Change of residence was the main factor that affected retention in care in Swaziland (Shabalala et al., 2018).

Express pharmacy services like blister packing, home delivery, automated refills, and reminder calls were found to enhance treatment adherence. Where long hospital waiting hours, a lack of courtesy from staff, and unfriendly appointment schedules prevented the patient from adhering to their appointments (Holtzman et al., 2015). The hours that the clinic opens and the distance from the facilities offering services were the main reported barriers to access in Vietnam, too. Lack of privacy and confidentiality concerns among patients and minimal or altered information about ART among females were the obstacles to ART adherence for these patients (FHI360, 2012). The HIV care continuum was influenced by the service organization, healthcare resources, physical environment, and intra-organizational communication (Grau et al., 2017). Northern Carolina's study on women of colour (WOC)

attributed health care inequalities to racial differences and the WHO stage of the HIV disease (Messer et al., 2013). In Tanzania, a study revealed the frustrations patients go through due to a lack of proper organization accessibility. Patients complained of being tossed around by the providers without proper direction or clear information regarding the services (Layer et al., 2014). Structural barriers and long waiting hours were the most experienced barriers among patients in Uganda (Opio et al., 2019).

Apart from the structural challenges within the hospitals, there is another hidden cost that hinders them from honouring their scheduled appointments. To ensure access to essential health services, each person should live within 5km of a health facility (NACC, 2014). A study in South Africa revealed that one of the factors associated with higher rates of lost to follow-up was clients living more than 10 km from the health centre (Losina et al., 2010). Distance from the health facility and associated costs have been described as obstacles to retention (Tuller et al., 2010). In Kenya, the cost of transportation to and from health facilities during follow-up visits was identified as a factor contributing to low retention (Janssen et al., 2015). However, a comparative study done in west China defers to the above findings, where outpatients far away from hospitals preferred to seek service immediately after being ill, while most of the closer outpatients did not (Luo et al., 2016).

## **2.5 Psychosocial Factors**

### **2.5.1 Disclosure to Significant Others**

Disclosure is informing someone about one's HIV-positive result. People may opt to disclose to the person they trust most, and these may include family members, friends, spouses, workmates, healthcare providers, and others gradually as time goes by. The disclosure was said to be a motivator for the spouse to go for testing, change behaviour, and ultimately curb HIV transmission. Disclosure gives the person opportunities for social support, confidence to

access to treatment, strength to communicate and discuss HIV risk-reduction measures with spouses, and future treatment plan (WHO, 2004).

HIV status disclosure rates among sexual partners were better in the developed world than in the developing ones. The disclosure rates were lower among past partners or current casual partners and lowest among sub-Saharan antenatal clients. Besides, disclosure was better among women from developed countries compared to women in developing countries (Medley et al., 2004). Failure to disclose one's HIV status and stigma were among the barriers to care (Mukumbang et al., 2017). HIV status disclosure was an important factor related to retention in care in different hospitals (Umeokonkwo et al., 2019). In the AMPATH care-based clinic, most of the respondents believed that disclosure counselling as a social determinant of retention on care was essential. Patients reported that disclosure counselling improved their stay in care and social relationships. Counselling on disclosure also helps in care retention (Gichuru, 2016).

### **2.5.2 Stigma and Denial**

Stigma is when HIV-positive patients encounter, perceive, or anticipate social rejection, discrimination, blame, and judgement by community members, families, friends, and peers (Weiss, 2008). In the University of Pennsylvania in the United States, stigma was the major factor among others influencing retention on care as the majority of patients failed to disclose their status due to fear of discrimination or being shamed, which negatively affected adherence (Holtzman et al., 2015). A couple of studies reported that stigma dramatically influences the effectiveness of interventions put in place to improve ART retention (Hall et al., 2017).

Self-stigma and denial of HIV status often led to continuous anxiety over the likelihood of breaching confidentiality associated with receiving HIV care services (Amirkhanian et al.,

2018). HIV-positive status denial contributed to delays in seeking care services and disclosure of HIV status (Kiriazova et al., 2018). Perceived stigma in patients who were residents of rural areas and unemployed was significantly higher than in their counterparts who were urban residents and self-employed (Pourmarzi et al., 2017). Socially isolated people who live alone in the house often delay or fail enrolment (Nakigozi et al., 2013).

In Uganda, stigma was the main barrier to enrollment in care, where the patients expressed fear of being seen by others who may disclose their HIV-positive status, which might lead to loss of respect, harsh treatment, and isolation by their peers and society (Lofgren et al., 2022). Another study done in the same country revealed that stigma has contributed to many patients missing their clinical appointments (Opio et al., 2019). Lack of motivation was among the factors that negatively affected linkage and retention in HIV clinics in Kenya (Rachlis et al., 2016). Similarly, stigma, discontentment with care, availability of traditional alternatives, and low economic status negatively affected care retention in Ethiopia (Tiruneh et al., 2016).

### **2.5.3 Social Support and responsibility**

Some of the social factors linked to care retention were lack of social support, perceived stigma, and relationships that one shares with significant others like a spouse, other members of the family, or friends. The perception of stigma from those significant others affects patients' behaviour and actions negatively (Roura et al., 2009). Adherence to medication and ultimate care retention is challenged by other competing and overriding tasks like work, school, and others (Holtzman et al., 2015). Insurance-related barriers included the application process, getting required documentation, and delays in submitting documentation due to age, gender, or residence (Maulsby et al., 2020). Those who were in uncommitted marital relationships and self-employed were likely to be LTFU (Mberi et al., 2015). The emotional

support given to patients by the lay health providers and the peer counsellors helps boosting their hopes and improve retention in care (Hall et al., 2017). Social support, feeling healthy, and functionality promoted retention in Ethiopia (Tiruneh et al., 2016). Likewise, in Kenya, it was revealed that 78.9% of the respondents believed that fare reimbursements influence the retention of HIV patients on care, 72.6% of the respondents thought that the number of returnees to the hospital for care is determined by the availability of fare reimbursements (Gichuru, 2016).

#### **2.5.4 Drug and Alcohol Use**

Optimal ART treatment outcome requires the patient to take 95% of their ART drugs as prescribed, and alcohol use was strongly associated with medication non-adherence (Hendershot et al., 2009). Alcohol consumption poses a threat to the survival of HIV-infected patients because it affects their adherence of patients to the ART treatment and, ultimately, treatment outcome (Paterson et al., 2000). Even at non-binge levels, it may affect adherence and ultimately impact the survival of HIV-infected patients (Braithwaite & Bryant, 2010). Alcoholism, just like narcotics use, emerged as a barrier to care retention. In one of the studies, the majority of the participants highlighted that they missed medical appointments or discontinued care due to drug use and heavy drinking (Amirkhanian et al., 2018). The results from a systemic review in developing countries also attributed low retention to the substance (Bulsara et al., 2018).

### **2.6 Theoretical Framework**

#### **2.6.1 Information Motivation Behavioural Skills Model**

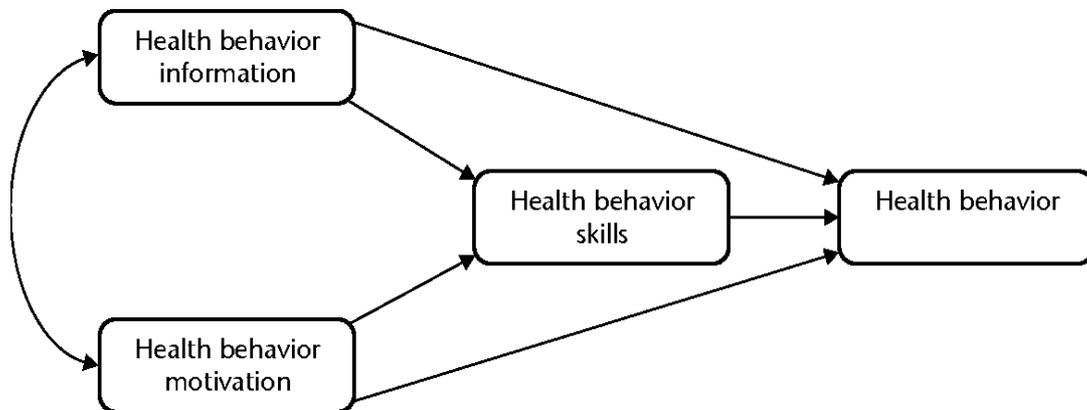
The Information Motivation Behavioural Skills model (IMB) developed by Fisher and Fisher (1992) will back the study in explaining the psychosocial factors affecting individuals' health behaviours. Several theories of health behaviour suggest intellectual factors influencing HIV

risk and prevention, including information about HIV, attitudes, and individual intentions (Ajzen & Fishbein, 1980). IMB stands out from other theories because it holistically explains the psychological determinants of health behaviour and actions regarding HIV/AIDS risk reduction. The theory assumes that people who are well informed, motivated to take preventive measures, and have the behavioural skills needed for effective action are likely to adapt and maintain behaviours that often promote health and ultimately have positive health outcomes (Fisher, 2002). In another study, men, higher education levels, intravenous injection drug non-users, and HIV symptoms were significantly associated with health-seeking behaviours (Anthony et al., 2007). Self-reported optimal adherence was influenced by motivation and information about treatment was mediated by adherence-related behavioural skills (Starace et al., 2006).

However, there was no significant difference among the groups based on demographics or adherence-related information; but instead, the differences were due to adherence-related behavioural skills (Norton et al., 2010). Similarly, in Mexico, adherence was associated with only behavioural skills, which also mediated motivation, but the information had no association with both behavioural skills and motivation (Santillán et al., 2015). Therefore, the study will employ this theory to assess relationships between (1) the personal and social motivators of patients' retention on ART, (2) disclosure of HIV status to the spouses and significant others and patient care services negotiation power, and (3) information about the HIV disease and ART retention.

**Figure 2.3**

*The Information Motivation Behavioural Skills Model of Health Behaviour*



*Source: Fisher and Fisher (1992)*

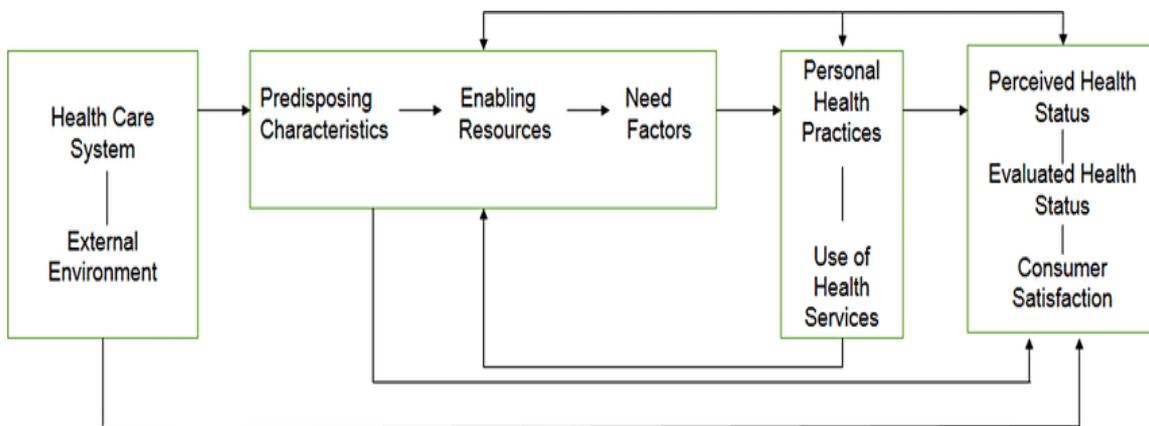
### **2.6.2 The Behavioural Model of Health Care Utilization theory**

Utilization of healthcare services is affected by three underlying forces, including predisposing factor (age, sex, and race), the enabling factor (family and community support), and the need (both the actual and perceived need for health care services). Factual findings will be discussed, demonstrating how the above concept might be used to explain some of the critical patterns in the utilization of care services (Andersen, 1995). The Behavioural Model of Health Care Utilization theory suggests that cognitive factors based on earlier frequent experiences with healthcare providers actually influence a person's perception and behaviour about interpersonal relationships. According to the study done by the American Psychosomatic Society, style in which patients were handled greatly affects an individual's healthcare perception and ultimate utilization (Ciechanowski, 2002). However, a study done by Phillips et al. (1998) suggest that understanding of the context of utilization behaviour requires examination of contextual factors that include patient's databases, service providers, and surrounding environmental variables. Thus, keen analysis of the context of utilization can help in understanding individual behaviours that influence healthcare services and, by

extension, help in the development of effective health policies and programs (Phillips et al., 1998).

**Figure 2.4**

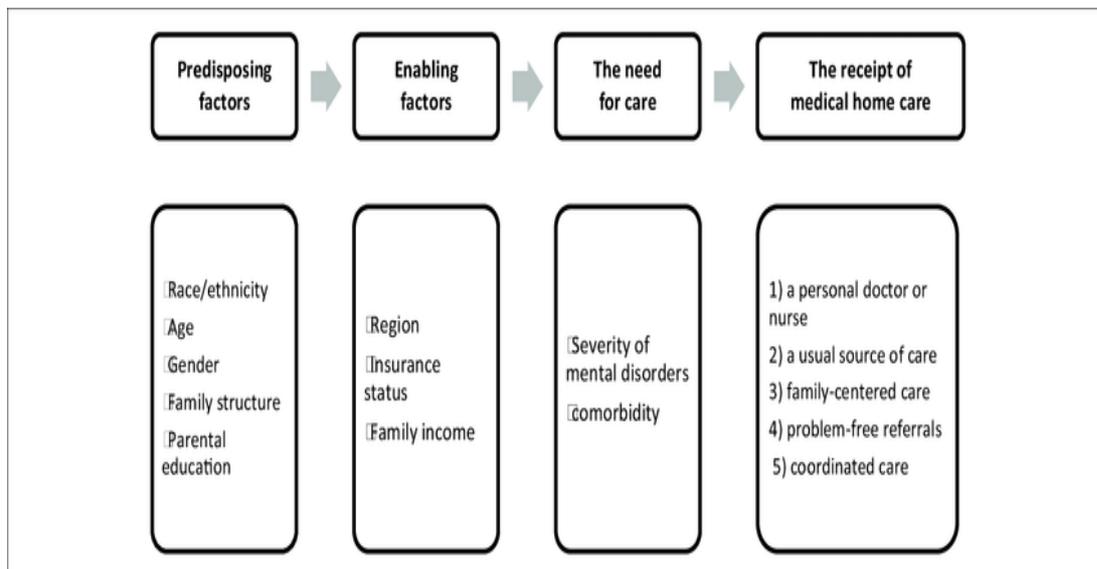
*Andersen-Newman Framework for Health Services Utilization*



*Source: Rachlis et al. (2016)*

**Figure 2.5**

*The Andersen Model of Healthcare Utilization*

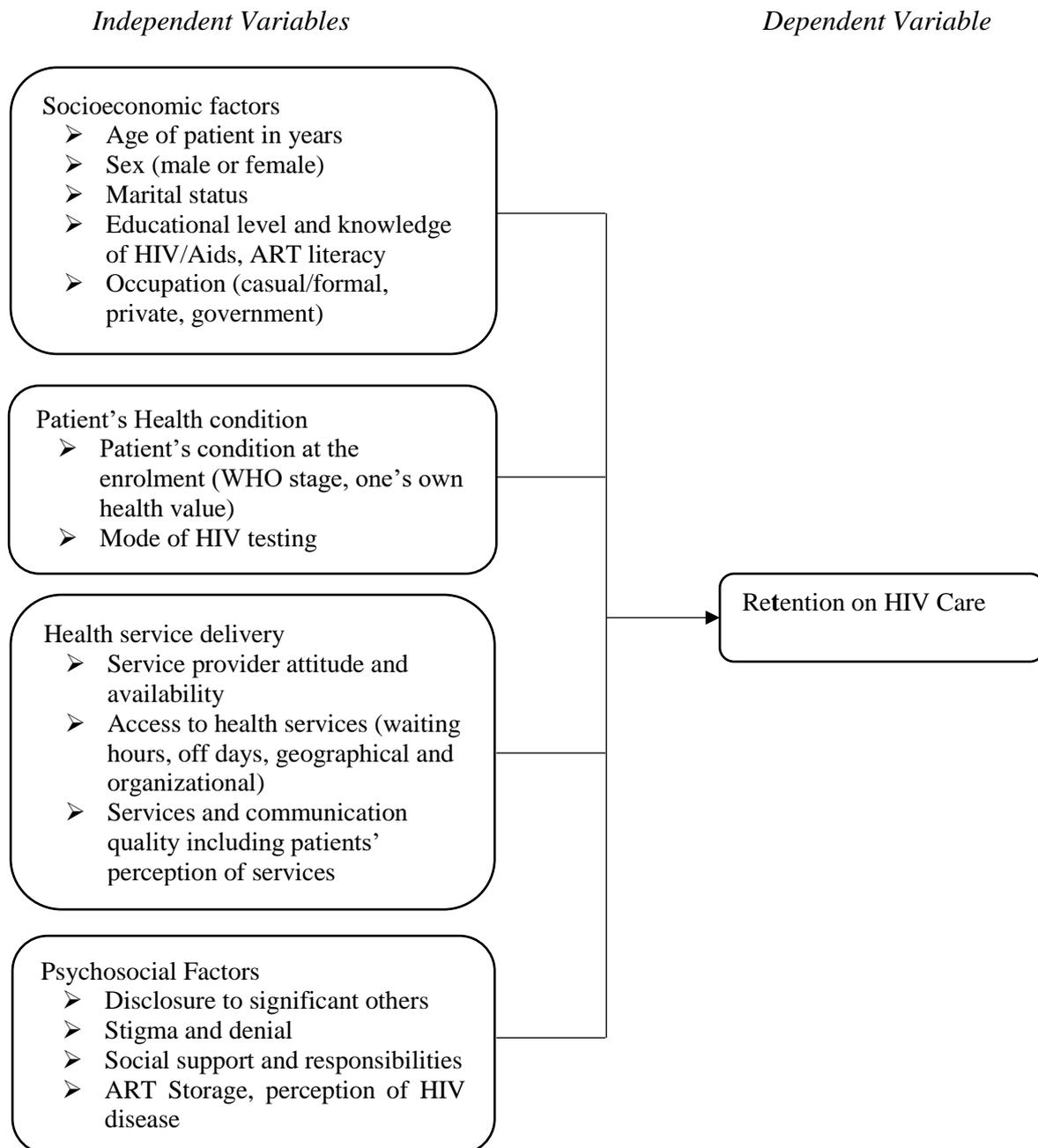


*Source: Andersen (1995)*

## 2.7. Conceptual Framework

Figure 2.6

*Conceptual Framework*



Source: Researcher (2023)

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

In this chapter, the study discusses the methodologies used to answer the research questions objectively. As mentioned in the earlier discussions, the chief objective of the study was to explore the potential factors affecting retention on HIV care for persons diagnosed with HIV in six sub-counties in Nakuru County. The chapter comprises the design, research strategies and methods, the study population, sampling frame and procedures, ethical issues, operationalization of variables, procedures, and instruments that are used for collection and data analysis methods.

#### **3.2 Study Site**

Nakuru County is the newest city in Kenya. It was the headquarters of the former Rift Valley Province of Kenya, and Nakuru is a borrowed word from the Maasai meaning a dusty place. It is about frequent whirlwinds that engulf the area with clouds of dust. It is about 90 kilometres away from Nairobi, covering an area of 7509.50 square kilometres. The World Bank estimates its population at 2,162,202 (male 49.8% and female 50.2% in 2019), and primary school enrolment was estimated at 458272, while secondary school gross enrolment was 141011 in 2018. The county is made up of eleven sub-counties as follows: North, Kuresoi South, Gilgil, Naivasha, Njoro, Molo, Nakuru Town East, Nakuru Town West, Bahati, Rongai, Subukia, and Kuresoi, but the study will focus only on six sub-counties. It is agriculturally rich, and farming is its main economic activity. Besides farming, the county has other attractive physical features such as craters, lakes, and parks that provide its residents with a livelihood. The study chose the county as it was among the four counties leading in new cases of HIV in 2018 and ranked the 4<sup>th</sup> highest burden county in Kenya in terms of HIV infection with a prevalence rate of 4% (NACC, 2018).

### **3.3 Research Design**

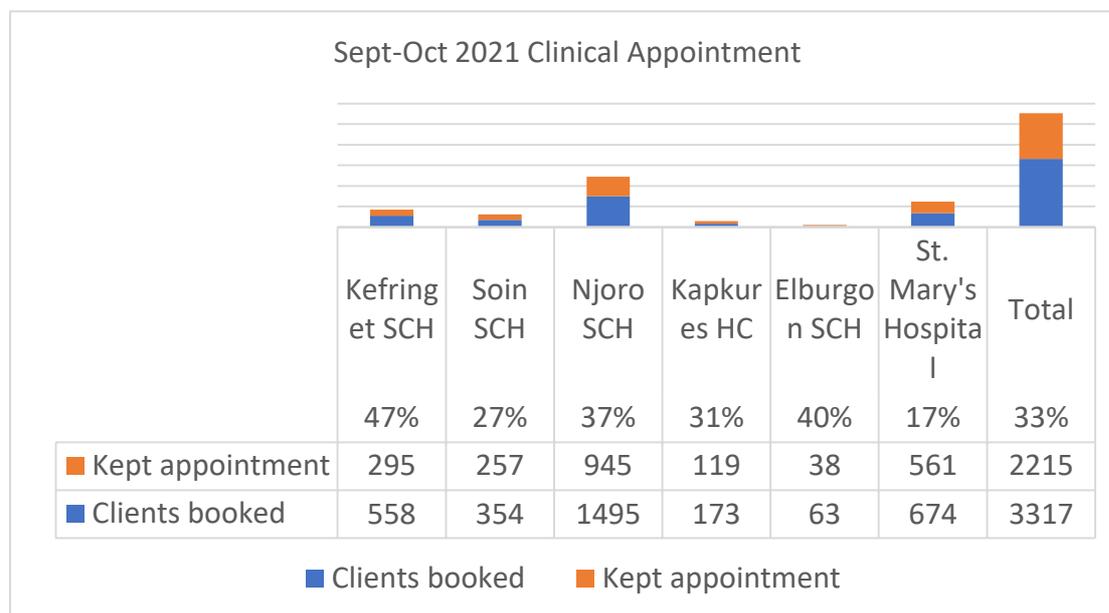
The study used a descriptive cross-sectional design so that the researcher could get the opportunity to assess and provide detailed information about the topic being studied. The cross-sectional design allowed the researcher to use either the entire population or a subset, and data was collected from these individuals to answer the research questions at hand. It is cross-sectional because the information about X and Y represents what is going on at that particular time (Portier et al., 2000). The design is useful in establishing preliminary evidence for a causal relationship as it helps in estimating the occurrence of risk factors in a segment of a population characterised by age, gender, colour, or socioeconomic status (Alexander et al., 2015).

### **3.4 Target Population**

The study targets a population of 3317 patients who were booked for clinical care in the months of September and October 2021, but after the exclusion of the children under 15 years, 2963 patients remained as the final target population. The researcher looked at both groups (those who kept appointments and those who defaulted) to understand the barriers that the patients face. The sample was drawn from six selected facilities, as shown in Table 3.1.

**Table 3.1**

*The Nakuru September-October 2021 Clinical Care Turn Up for the Selected Facilities*



*Source: Facility appointment diaries (September-October 2021)*

### 3.5 Sample Size Determination and Sampling Procedure

#### 3.5.1 Sample Size Determination

The sample size based on Krejci and Morgan’s table for sample size calculation is 341 participants of the total booked of 2963 at a 95% confidence level and 0.5 margins of error.

N= 2963 (number booked for the clinical appointments in the months of September and October 2021, excluding children below 15 years.

#### 3.5.2 Sampling Procedure

The study selected six Nakuru sub-counties; three with high rates of attrition and three with lower rates. These are Kuresoi South, Njoro, Rongai, Nakuru West, Gilgil, and Molo, and one tier three or four hospitals were chosen from each sub-county using a random selection method, where the sample size for each facility was based on the number booked and determined using Morgan's table, as shown in Table 3.2

**Table 3.2***Proportionate Distribution Sample Size Determination*

<b>Facility</b>	<b>Target Population</b>	<b>Sample size</b>
Keringet SCH	512	59
Soin SCH	317	36
Njoro SCH	1299	149
Kapkures HC	143	16
Elburgon SCH	39	4
St. Mary's Hospital	653	75
<b>Total</b>	<b>2963</b>	<b>341</b>

**Table 3.3***The Number of Patients Interviewed Per Facility*

<b>Facilities</b>	<b>Keep appointment</b>		<b>Not kept appointment</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Kapkures Health center	23	14.4	8	9.1
Njoro Sub-County Hospital	24	15	36	40.9
Elburgon Sub-County Hospital	33	20.6	17	19.3
Keringet Sub-County Hospital	35	21.9	8	9.1
Soin Sub-County Hospital	20	12.5	4	4.5
St Mary Hospital	16	10	13	14.8
Kabarak Health centre	9	5.6	2	2.3
<b>Total</b>	<b>160</b>	<b>100</b>	<b>88</b>	<b>100</b>

To better understand the problem, the researcher used existing data to focus on those who booked for clinical care during the period, looking at both groups (those who kept appointments and those who did not). The non-probability method was used to select clients as they arrived for their clinical appointments. For the defaulters, the clinical appointment diary was used to select the defaulters, and patients were chosen at random for calling,

excluding those with no phone contacts, phones out of reach, or incorrect phone contacts. To achieve the desired sample size, the next file was chosen. However, some patients picked up the questionnaires and dropped them in the carton box provided without filling out any information.

### **3.6 Inclusion criteria and exclusion criteria**

#### **3.6.1 Inclusion Criteria**

The study included all patients on ART and was booked to attend their clinical appointments in the months of September and October 2021.

#### **3.6.2 Exclusion Criteria**

The study excluded all clients who have no phone contact, wrong phone contacts, unreachable through the phone, those who declined to give information, official transferred to other facilities, the deceased, and children under the age of 15 years.

### **3.7 Instrumentation**

#### **3.7.1 Data Collection Tool**

Primary data was collected in two categories using semi-structured questionnaires. The first category of data collection was at the facility level, for those who visited the facility. Data for the defaulters was collected over the phone in the second category. For facility-level data collection, questionnaires were distributed to patients as they arrived, following their consent. Those who could write filled out the questionnaires on their own, while illiterates and semi-illiterates who wanted to participate were assisted by the client's experts (peers) in filling out the questionnaires. Following an introduction and consent-seeking, the researcher administered the online questionnaires herself while writing down the responses. In this section, the researcher walks the respondent through the questions. The study preferred semi-structured questionnaires because they are useful and cost-effective when gathering

information from large samples over a short period of time. It is easily facilitated, and there is standardisation of coding and data analysis (Portier et al., 2000). The methods of administration are suitable for the study owing to the respondents varied experiences and roles regarding care service provision or utilization. The research objective's introduction letter accompanied the questionnaire, and verbal consent was obtained from all participants for 20–30 minutes, depending on the patient's understanding. Since this is very personal information, the researcher personally collected the on-phone information from the patients and analysed the collected data.

### **3.7.2 Reliability**

The three reliabilities are described in quantitative research. The first one relates to the stability of measurement if it is done repeatedly and to what degree it remains consistent or gives the same results over a given time. The reliability of instruments is vital, as it assures that the instrument measures consistently. The study used the internal consistency technique to strengthen the tool's reliability by correlating a score on one item with scores obtained from other items in the instrument (Kirk & Miller, 1986). The study used Cronbach's alpha to measure the internal consistency of results across items within a test, that is, how closely related a set of items are as a group. The Cronbach alpha was interpreted as the mean of all possible split-half coefficients and was a measure of scale reliability. Note that a Cronbach reliability coefficient of .70 or higher was considered “acceptable” (Bonett, 2014). The third reliability measure describes the extent to which different observers will give the same judgement. In this case, the extent to which each patient rates services in a certain facility

### 3.7.3 Validity

Validity measures whether the research methods genuinely measure what was intended or reflect the real results (Golafshani, 2003). It can be tested using inter-rater reliability via multiple runs of the test whose results are compared.

Where;

$\alpha$  = reliability of coefficient of internal consistency

K = number of items used to measure the concept

$\sigma^2$  = variance of the observed total test scores

$\sigma_i^2$  = variance of individual items

$i$  = current sample of the person

### 3.7.4 Pretesting of the Study Tool

The questionnaire was pre-tested on thirty patients at Langa Langa Sub-County Hospital before it was used. Then appropriate corrections were made accordingly.

### 3.8 Operational Definition of Variables

Table 3.4 shows the operationalization of dependent variables and specific objectives.

**Table 3.4**

*Operational Definition of Variables*

Objectives	Variable	Indicators	Measurement	Measurement Scale	Data Collection tool	Analysis type
1. Influence of socioeconomic factors on the care retention of HIV patients in care	Socioeconomic factors	Age	Age of clients	Nominal & Ordinal	Questionnaire	Descriptive Statistics
		Sex	Male or Female			
		Education/ Knowledge	Education level and knowledge of HIV			
		Occupation	Casual, formal, private, or Government			
2. Influence of patients' health conditions on retention of the patient in HIV care	Patient's health condition factors	Social support and economic status	Social support from significant others & social responsibilities	Ordinal	Questionnaire	Descriptive Statistics
		Drugs and alcohol	Types of drug abuse			
3. Influence of health service delivery factors on retention of patients in HIV care	Health service delivery factors	Patients' health status at enrolment	WHO staging	Ordinal	Questionnaire	Regression analysis
		Perception of health	One's value of health			
		Service provider	Service provider attitude and availability			
4. Influence of psychological factors on the retention of patients in HIV care	Psychosocial factors	Access to health services	Hospital waiting hours Distance covered by patients to access services	Ordinal	Questionnaire	Regression Analysis
		Quality of service	Information patients received Perceived stigma by patients and fears			
		Stigma/ Denial	Acceptance of one's HIV status			
		Disclosure to significant others	Willingness to disclose one's HIV status to others Family situation			

### 3.9 Data Analysis and Management

All data collection tools were reviewed to ensure completeness. Data was transferred from the questionnaire directly to SPSS version 26.0 software, stored on a password-locked computer. The data backed up in an Excel copy on an external hard drive that is safeguarded

by the researcher. The questionnaires containing patients' feedback were stored in a lockable cabinet for reference during the analysis. Extra cleaning was done through cross-tabulations until the data was error-free. The data analysis was carried out in three stages: The study participants attributes were analysed using univariate analysis. The collected data was analysed using descriptive and inferential statistics. Descriptive statistics involve the use of frequencies, percentages, and cross-tabulations. Inferential statistics involve the use of binary logistic regression. Logistic regression is used when the dependent variable is categorical in nature, as it was in this study. The mathematical formulation of logistic regression is:

$$P(Y_i) = \frac{1}{1+e^{-(b_0+b_1X_i)}}$$

Where:

- $P(Y_i)$  is the predicted probability that Y is true for case  $i$
- $e$  is a mathematical constant of roughly 2.72
- $b_0$  is a constant estimate from the data
- $b_1$  is a b-coefficient estimated from the data
- $X_i$  is the observed score on variable X for case  $i$

A multivariate logistic regression was then run to make inferences on all the independent variables together for the dependent variable. The functional formula is set as follows:

$$P(Y_i) = \frac{1}{1+e^{-(b_0+b_1X_i+b_2X_{2i}+\dots+b_kX_{ki})}}$$

Where:

- $P(Y_i)$  is the predicted probability that Y is true for case  $i$
- $e$  is a mathematical constant of roughly 2.72
- $b_0$  is a constant estimate from the data

- $b_1, b_2, \dots, b_k$  is a b-coefficient estimated from the predictor 1, 2, 3, ...,  $k$
- $X_{1i}, X_{2i}, \dots, X_{ki}$  is the observed score on predictors  $X_1, X_2, \dots, X_k$  for case  $i$

For both binary and multivariate logistic regressions, odds ratios were determined and used to draw conclusions on the influence of each independent variable on the dependent variable. Due to the need to determine relationships between the study variables, a p value was set at  $p \leq 0.05$ . The five Likert questions were collapsed into three from five, where strongly disagree was combined with disagree and strongly agree was combined with agree, as neutrally analysed as it was.

### **3.10 Ethical Considerations**

The researcher sought authorization from the relevant research approval bodies: the Kenya Methodist University science, ethics, and research committee (SERC), the National Commission for Science, Technology, and Innovation (NACOSTI), and letters from other authorities like the county before the data collection activity commenced. The institutional entry procedures were followed, and a letter of introduction was sent in advance to the county and sub-county health management teams as well as the medical superintendents of the interested facilities. All study respondents received explanations about the study procedures, risks, and benefits, and written or oral consent for enrolment was sought. The confidentiality of the study participants was assured, and interviews were conducted privately. The researcher safeguarded the data by storing it on password-protected computers that were only accessible by the researcher, and the results are generalised without referring to a specific person.

## CHAPTER FOUR

### RESULTS AND DISCUSSIONS

#### 4.1 Introduction

The research findings form the focus of this chapter. The study's goal was to look into the relationships between socioeconomic, patient health conditions, psychosocial health, and service delivery variables that affect patient retention in HIV care in Nakuru County, as informed by theory and research. The investigation was guided by the research questions listed below.

- i. To what level do socioeconomic factors affect the retention of patients in HIV care in Nakuru County?
- ii. To what extent does the patient's health condition influence her or his retention in care in Nakuru County?
- iii. How do the service delivery factors influence patients' retention in HIV care in Nakuru County?
- iv. To what limit do psychosocial issues affect the retention of patients in HIV care in Nakuru County?

#### 4.1.2 Response Rate

The 341 questionnaires were distributed to patients attending HIV clinics in Nakuru County's selected facilities. The study gathered information from 248 clients, representing a 73% response rate. A response rate of more than 70% is considered adequate for further research.

**Table 4.1**

*Response Rate*

<b>Response Rate</b>	<b>Frequency</b>	<b>Percentage</b>
Responded	248	73.0
No response	93	27.0
<b>Total</b>	<b>341</b>	<b>100</b>

### 4.1.3 Pretest Test Results

Before the study began, the questionnaires were piloted to determine the validity and reliability tests, as well as to evaluate specific questions, layout, question order, and instructions. For those who scored less than the acceptable value of 0.7 Cronbach's alpha, changes were made.

### 4.1.4 Reliability Tests

The findings are illustrated in Table 4.2 below demonstrates that most variables had a Cronbach's alpha value of more than seven. However, the Cronbach alpha score for ART adherence with three indicators was 0.628, and family support with two indicators was 0.479. The score was deemed questionable for further research, and it was revised. Thus, the research concluded that the instrument used was credible and that it could be used for further research.

**Table 4.2**

*Reliability Tests*

<b>Variable</b>	<b>Cronbach's Alpha Value</b>	<b>Number of Items</b>
ART Adherence	0.628	3
Treatment literacy/Knowledge	0.882	5
Effect of other drug use on ART adherence	0.862	4
Communication quality	0.773	5
Family support	0.479	2
Social responsibilities	0.832	5
Health service providers attitude	0.87	6
Service organization	0.737	5
Perceivedd stigma and fears	0.625	4
Storage of ART	0.924	3
Acceptance of one's status	0.673	4
Organizational Aaccessibility	0.793	6
Accessibility	0.758	6

Cronbach's alpha was used to assess the internal consistency of results across and within items in the questionnaires. Cronbach's alpha is a measure of scale reliability that is interpreted as the mean of all possible split-half coefficients. It should be noted that a Cronbach reliability coefficient of .70 or higher is considered "acceptable" (Bonett et al., 2015).

#### 4.2 Socioeconomic factors

The data was collected between September and October of 2021. The research findings on socio-economic are shown in Table 4.3.

**Table 4.3**

*Socioeconomic Factors*

<b>Variable</b>	<b>Frequency</b>	<b>Percent</b>
<b>Gender</b>		
Male	79	31.9
Female	169	68.1
<b>Marital Status</b>		
Married	124	50.0
Cohabiting	11	4.4
Widow/widower	33	13.3
Divorced	29	11.7
Single	51	20.6
<b>Age Category</b>		
15-19	9	3.6
20-29	40	16.1
30-39	80	32.3
40-49	65	26.2
50 and above	54	21.8
<b>Employment Status</b>		
Employed	104	41.9
Unemployed	53	21.4
Casual Labourers	91	36.7
<b>Education Level</b>		
None	15	6.0
Primary	109	44.0
Secondary	93	37.5
Tertiary	31	12.5
<b>Total</b>	<b>248</b>	<b>100</b>

According to the table above, those between the ages of 30 and 39 made up the majority, accounting for 32.3% of the total, followed by those between the ages of 40 and 49 (26.2%), 20-29 (16.1%), and those between the ages of 15 and 19 (3.6%). Those aged 50 and up contributed 21.8%. According to the findings, the majority of those who visited the clinic at the time were in their thirties and forties. The majority of respondents (68% were female), followed by males (31.9 percent), and 0.3 percent never indicated their genders. This finding backs up previous research that found women account for more than half of all HIV patients worldwide. In 2018, women had a higher prevalence rate of 6.6 than men, who had a lower prevalence rate of 3.1 (NACC, 2018). Half of the respondents were married, 20% were single, 13% were widows and widowers, 11.7% were divorced, and 4.4% were cohabitants, indicating high rates of HIV infection among married couples.

The findings show that 44% of respondents dropped out of formal schooling at the primary level, with only 37% progressing to the secondary level. Similarly, the majority (36.7%) continued to work as casual labourers, 34.3% were self-employed, and 21% were unemployed. Only 13% had finished college or university, and 7.7% were employed in a formal capacity. 0.1 percent did not attend school, while the remaining 0.4% were still in school. The US Bureau of Labour Statistics (BLS) has established a link between education and pay. According to the report, education raises wages and salaries while decreasing unemployment (BLS). The study's findings support previous research that links low socioeconomic status to HIV/AIDS infection (Durevall et al., 2019). Illiteracy and being in rural habitats were also cited as barriers to linkage and retention (Koirala et al., 2017).

## 4.2.2 Knowledge of ART

### 4.2.2.1 ART adherence

The study sought to establish whether patients attending a care clinic in Nakuru County were adhering to their ART medication. To accomplish this, five-point Likert-scaled questions made up of three items were developed and administered to patients. These items were later compressed into three responses for ease of interpretation, as shown in the Table 4.4

**Table 4.4**

*ART Adherence*

<b>Variable:</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Timing of ART medicine	Disagreed	177	71.4
	Neutral	23	9.3
	Agreed	48	19.4
Irregular use of ART	Disagreed	198	79.8
	Neutral	13	5.2
	Agreed	37	14.9
Sharing and borrowing of ART medicine	Disagreed	195	78.6
	Neutral	13	5.2
	Agreed	40	16.1

The researcher sought to find out whether or not patients were currently taking their ART medication. According to the findings, a higher percentage of patients N (94.4%) were on ART at the time of the interview, regardless of whether they were active or defaulters at the clinic, and N (5.6%) were out of medicine or had stopped taking the ART medication. This is to be expected because, despite being inactive in primary care facilities, many patients seek treatment from other facilities. However, due to the system's inability to capture that data, our facilities consistently report a high number of ART defaulters. According to the findings, 29% of patients labelled as lost to follow-up and defaulters had actually transferred to other facilities, and 18% reported borrowing medicines from other facilities when they missed appointments. The findings agree with what was reported in Zambia, where 26% of the

originally reported lost to follow-up had transferred to another facility (Sikombe et al., 2020). There was no association between mobility and ART retention; however, some migrants accessed ART care while travelling (Bernardo et al., 2021). Patients' mobility was among the barriers reported by patients in southern Sudan (United States Agency for International Development [USAID], 2019).

Further, the respondents were asked if they took their medication at a specific time. According to the results, N (71.4%) of respondents disagreed with not taking medicine at a specific time, N (19.4%) agreed with not taking medicine on time, and N (9.3%) remained neutral. Although the majority of participants report taking their medications on time, the percentage is still below the ART adherence recommendation. This explains the low care retention rates reported in previous findings, where only 66.8% of participants remained on care at Pumwani Hospital in Nairobi (Rono, 2018). The results support previous findings that the reported lack of accurate information was evident in another study where some participants cited confusion regarding medication timing (Holtzman et al., 2015).

In terms of whether patients take their ART medication regularly, or miss some days, or skip some days, 79.8% of respondents opposed taking their medication irregularly or forgetting to take it on some days. Results show that N (5%) were undecided, while 15% agreed to take their medicine on an irregular basis. This result was expected, as Nakuru was one of the four counties with the highest number of new HIV cases in 2018 (NACC, 2018). It also recorded an average of (72%) retention on ART (DHIS2, 2018). This is because achieving viral suppression and preventing HIV spread depend on optimal ART adherence.

Regarding the sharing and borrowing of ART medications among patients, the findings show that patients continue to share medicine amongst themselves, with at least 16% mentioning it, even though the majority (79%) disagreed with sharing and 5% were neutral on the subject.

Non-adherence to ART treatment has been identified as a major barrier to achieving viral suppression in ART patients, and it has been linked to the emergence of resistance viruses, putting the general public at risk. Given the advances in HIV treatment and the ongoing continuous counselling provided to patients, this result was unexpected. However, the findings, contrary to my expectations, support the previous finding that ART sharing was attributed to inaccessibility, financial constraints, and fear of health care providers (Gaston, 2013).

#### **4.2.2.2 ART literacy**

The study sought to establish whether patients understand the consequences of stopping ART treatment in Nakuru County. To accomplish this, five-point Likert-scaled questions made up of five items were developed and administered to patients. These items were later compressed into three responses for ease of interpretation, as shown in Table 4.5

In terms of whether patients understand the risks of discontinuing clinical appointments, according to the findings, 89.5% of those polled said yes, while 10.5% said no. This implies that a significant number of people have been empowered through adherence counselling and are aware of the consequences regarding whether patients understand the dangers of discontinuing clinical visits.

On mobility and failure to provide for the family, many patients appeared to understand the consequences of discontinuing ART medication, with the majority (61%) agreeing to the question, 12.5% neutral, and 26% disagreeing with mobility due to non-adherence.

**Table 4.5***ART Literacy*

<b>Variable:</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Mobility and failure to provide for the family	Disagreed	65	26.2
	Neutral	31	12.5
	Agreed	152	61.3
Viral multiplication and sickness	Disagreed	58	23.4
	Neutral	26	10.5
	Agreed	164	66.1
Stigma due to the opportunistic infections	Disagreed	69	27.8
	Neutral	38	15.3
	Agreed	141	56.9
Transmission of HIV children	Disagreed	46	18.5
	Neutral	36	14.5
	Agreed	166	66.9
Death	Disagreed	31	12.5
	Neutral	18	7.3
	Agreed	199	80.2
<b>Total</b>		<b>248</b>	<b>100.0</b>

On whether ART non-adherence causes viral multiplication and sickness, the majority, 66%, agreed that ART non-adherence causes viral multiplication and sickness, while 23% disagreed and 11% were neutral.

Regarding whether non-adherence is related to stigma caused by opportunistic infections, the majority (57%) agreed, 15% remained neutral, and 27% disagreed. On whether noncompliance causes HIV transmission to children, the majority (66.9%) agreed, 14.5% were neutral, and 16.5% disagreed.

In terms of whether non-adherence to ART results in death, the majority of respondents (80%) agreed, 7% were neutral, and 13% disagreed. According to the findings above, the majority of patients understood the consequences of discontinuing ART. With the presence of

adherence counsellors and expert clients in each of the facilities studied, this was to be expected. The question was whether the minority who disagreed didn't get enough information, whether they were in denial, or whether they didn't understand the questions.

### 4.3 Patients health condition

#### 4.3.1 Mode of testing and WHO stages at enrolment

The majority 41.1% of those polled were tested through VCT, 32.3% were tested through the PITC, 17.7% were identified through PMTCT, and 8.9% were tested through other methods. At the time of enrollment, 65.3% of respondents were in stage one, 23.4% were in stage two, 9.3% were in stage three, and 2% were in stage four, according to WHO clinical stages. These findings indicate that people have begun to take their health seriously, as opposed to the previous days when patients waited until approaching the final stages. However, there is a flaw in the process when it comes to identification, as evidenced by a previous finding that, despite patients' willingness to accept testing if provided, PITC coverage was insufficient (Agutu et al., 2021).

**Table 4.6**

*Mode of Testing and WHO Stages at Enrolment*

Variable	Response	Frequency	Percent
HIV mode of testing	PITC	80	32.3
	VCT	102	41.1
	PMTCT	44	17.7
	Other	22	8.9
Initial WHO stage	stage 1	162	65.3
	stage 2	58	23.4
	stage 3	23	9.3
	stage 4	5	2.0

### 4.3.2 Patients perception of their health

Concerning whether patients were treated for the condition that brought them to the hospital, 54% said yes, 2.4% believed they did not receive treatment for their illness, and the remaining said neutral. And the rest, 43.5%, were not sick at the time of visit, so the answer was inapplicable. Patients' opinions, no matter how small the percentage is, must be taken into account as they impact retention. When asked if they consented to being contacted, 98% said yes, and only 2% said no. The vast majority (58%) preferred phone calls as their preferred mode of communication, while 19% preferred short messages, 3.6% preferred home visits, 0.8% wished to be contacted through treatment buddies, and the remaining 0.8% had not decided on a method of follow-up.

**Table 4.7**

*Patients' Perception of Health*

Variable	Response	Frequency	Percent
The hospital has adequate medical personnel	Disagreed	76	30.6
	Neutral	34	13.7
	Agreed	138	55.6
I would love to see an attitude change in the hospital staff	Disagreed	136	54.8
	Neutral	52	21.0
	Agreed	60	24.2
I feel there is no privacy, and I would like that improved	Disagreed	165	66.5
	Neutral	28	11.3
	Agreed	55	22.2
I spend too much time in the hospital	Disagreed	178	71.8
	Neutral	36	14.5
	Agreed	34	13.7
It would have been better if the services are offered after 5 pm, weekends and lunch hours (flexible hours)	Disagreed	99	39.9
	Neutral	46	18.5
	Agreed	103	41.5
Healthcare workers are not always available to offer services	Disagreed	208	83.9
	Neutral	15	6.0
	Agreed	25	10.1

## **4.4 Health service delivery**

### **4.4.1 Healthcare providers' attitude**

The vast majority (96.8%) of respondents agreed that health professionals were open and friendly, while 3.2% disagreed. When asked if they had been treated rudely by healthcare workers during their most recent clinical visit, 88.7% said no, 6.9% said yes, and 4.4% remained neutral. In terms of healthcare workers' perceived attention, 88.7% said they were listened to, 7.7% said they did not get attention, and 3.6% were undecided.

When asked if they had received explanations for their test results and clinical return dates, 84.3% agreed, 10.9% disagreed, and 4.8% were neutral. When asked if healthcare workers reprimanded them in front of others, 91% said no, 6% agreed, and 3% were undecided.

In terms of confidentiality, 90.3% of respondents disagreed that healthcare workers should reveal their status to others, while 7.3% agreed, and 2.4% were neutral. According to previous research findings, health providers' attitudes were a major barrier to treatment. In terms of percentages, however, there appeared to be some progress.

**Table 4.8***Healthcare Provider's Attitude*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Are the health care workers in this hospital friendly?	yes	240	96.8
	no	8	3.2
Health care workers were rude to me when I visited the clinic last	Disagreed	220	88.7
	Neutral	11	4.4
	Agreed	17	6.9
Health care workers did not listen to my issues when I visited the clinic last	Disagreed	220	88.7
	Neutral	9	3.6
	Agreed	19	7.7
Health care workers did not explain to me my results and clinic return dates	Disagreed	209	84.3
	Neutral	12	4.8
	Agreed	27	10.9
Health care workers scold people in the presence of others	Disagreed	225	90.7
	Neutral	8	3.2
	Agreed	15	6.0
Health care workers disclose my status to other people	Disagreed	224	90.3
	Neutral	6	2.4
	Agreed	18	7.3

**4.4.2 Communication quality**

In terms of whether healthcare workers give patients their results on the phone before clinical visits, the majority of respondents (59.3%) agreed, 28.2% disagreed, and 12.5% were neutral. This demonstrates that at least half of the people receive feedback on their lab results, allowing action to be taken sooner in the event of an expected. When it came to medication

counselling, almost all (93% agreed), 5% disagreed, and 2% remained neutral. Previous findings indicated that patients received insufficient counselling or that providers received insufficient information (Rachlis et al., 2016). In terms of whether health care workers provide psychological support and counselling to patients, 93.5% agreed, 3.6% disagreed, and 2.8% answered neutrally. This was anticipated with the placement of adherence counsellors, community volunteers, and others. The findings are consistent with previous findings regarding medication literacy. The majority of respondents (78.6%) agreed that health care workers reminded them to attend clinical appointments, while 12.5% disagreed and 8.9% were neutral. Likewise, when asked if health care workers follow up on missed clinical appointments, 90.3% agreed, 7.7% disagreed, and 2% were undecided. The result revealed a gap in the reminder system; calls were made in response to missed appointments rather than as a reminder. Given the current retention rates, this was to be expected.

**Table 4.9**

*Communication Quality*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Health care workers usually call me to inform me of my lab results or text me the results	Disagreed	70	28.2
	Neutral	31	12.5
	Agreed	147	59.3
Health care workers counselled me on how and to take my medicine	Disagreed	13	5.2
	Neutral	4	1.6
	Agreed	231	93.1
Health care workers offered me psychological support and counselling	Disagreed	9	3.6
	Neutral	7	2.8
	Agreed	232	93.5
Health care workers usually remind me to attend my clinical appointments	Disagreed	31	12.5
	Neutral	22	8.9
	Agreed	195	78.6
Health care workers usually follow up on me whenever I miss my clinical appointments	Disagreed	19	7.7
	Neutral	5	2.0
	Agreed	224	90.3

### 4.4.3 Organization Access

In terms of patient opinions of care services, N (79.8%) thought they were excellent, while 20.2% thought they were fair. According to the findings of the study, 88% of those enrolled in care did so on the same day as expected, (7%) within two weeks, and 5% beyond two weeks. In terms of time spent at the facility, 81% said they were served within an hour, 14% within one to two hours, 4% between two and three hours, and 1% spent more than three hours. When asked about the flow of the clinic, 73.4% said it was good, 24.6% said it was fair, and 2% said it was poor. Although the majority of people were satisfied with the services as expected, we can't ignore the few people who complained for the ART program to succeed.

**Table 4.10**

*Organization Access*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
How do you describe the services you received at this facility during your last clinical visit?	Good	198	79.8
	Fair	50	20.2
How long did you wait to enroll in care and treatment program after the initial HIV diagnosis?	Same day	218	88.0
	Within two weeks	17	7.0
	Past two weeks	13	5.0
How much time did spend at the clinic the last time you visited	Less than one hour	199	88.0
	One to two hours	35	14.0
	Two to three hours	11	4.0
	More than three	3	1.0
What is your view of the clinic flow?	Good	182	73.4
	Fair	61	24.6
	Poor	5	2.0

#### 4.4.4 Geographical access

When asked how long it takes to get to a medical facility for treatment, 70% said less than an hour, 20% said one to two hours, 9% said two to three hours, and 1% said more than three hours. This was unexpected given the long lines at the outpatient clinic. In terms of transportation to the clinic, the majority (46%) spent at least 100 to 300 Kenyan shillings, 39% spent less than 100 Kenyan shillings, 7% used more than 300 Kenyan shillings, and 9% walked. When asked if it was challenging to get time off, 34.7% said yes, while the majority, 65.3%, said no. This indicates that, despite all efforts to raise awareness about HIV/AIDS, some patients continue to face challenges.

**Table 4.11**

*Geographical Access*

Variable	Response	Frequency	Percent
How long do you take to reach the clinic	Less than one hour	174	70.0
	One to two hours	49	20.0
	Two to three hours	22	9.0
	More than three hours	3	1.0
How much do you spend on transport to the clinic?	None	22	9.0
	Less than 100ksh	96	39.0
	100-300ksh	113	46.0
Do you have challenges in getting an off day to visit the facility for treatment?	More than 300Ksh	17	7.0
	Yes	86	34.7
	No	162	65.3

#### 4.4.5 Patients perception of healthcare services

In terms of medical staffing, more than half of patients (55.6%) agreed that the facilities had enough staff to provide the services, while 30.6% disagreed and 13.7% were unsure. More

than half of respondents (54.8%) were satisfied with health professionals' attitudes; 24.2% would wish for an attitude change, and 21% were neutral. A majority of 66.5% disagreed with the statement that the hospital had no privacy. 22.2% agreed that their privacy was being jeopardized, while 11.3% were undecided. When it came to time spent at the hospital during clinic days, the majority of respondents disagreed with spending longer, 13.7% agreed, and 14.5% were neutral. When asked if they preferred weekends and flex hours, 41.5% said yes, 39.9% said no, and 18.5% said they were unsure. When asked if they preferred weekends and flex hours, 41.5% said yes, 39.9% said no, and 18.5% said they were unsure.

**Table 4.12**

*Patients' Perception of Healthcare Services*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
The hospital has adequate medical personnel	Disagreed	76	30.6
	Neutral	34	13.7
	Agreed	138	55.6
I would love to see an attitude change in the hospital staff	Disagreed	136	54.8
	Neutral	52	21.0
	Agreed	60	24.2
I feel there is no privacy, and I would like that improved	Disagreed	165	66.5
	Neutral	28	11.3
	Agreed	55	22.2
I spend too much time in the hospital	Disagreed	178	71.8
	Neutral	36	14.5
	Agreed	34	13.7
It would have been better if the services are offered after 5 pm, weekends and lunch hours (flexible hours)	Disagreed	99	39.9
	Neutral	46	18.5
	Agreed	103	41.5
Healthcare workers are not always available to offer services	Disagreed	208	83.9
	Neutral	15	6.0
	Agreed	25	10.1

## **4.5 Psychosocial Factors**

### **4.5.1.1 Disclosure of HIV status**

Disclosure of one's status gives an individual confidence to take medicine as it improves patients' social relationships, boosts confidence, and reduces stigma, thereby improving retention on care. According to the study's findings, the vast majority (77%) had already disclosed their HIV status to someone, while the remaining 23% had yet to do so for various reasons. The majority (58%) of those who disclosed shared their status with their spouses, 18% with their siblings, 13% with their parents, 4% with their friends, 6% with their children, 2% made it public, and 1% shared it with both parents and siblings. The disclosure was said to motivate the spouse to get tested, change their behaviour, and, ultimately, stop HIV transmission. Disclosure allows for communication and discussion of HIV risk-reduction measures with spouses, as well as future treatment planning (WHO, 2004). Failure to disclose one's HIV status and stigma were among the barriers of care (Mukumbang et al., 2017). HIV status disclosure was an important factor related to retention in care in different hospitals (Umeokonkwo et al., 2019).

**Table 4.13***Disclosure of HIV Status*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Did you disclose your HIV status	Yes	191	77.0
	No	57	23.0
	<b>Total</b>	<b>248</b>	<b>100</b>
If yes, whom did you share your status with	Spouse	110	58.0
	Sibling	34	18.0
	Parent	24	13.0
	A friend	7	4.0
	A child	11	6.0
	Parent and siblings	1	1.0
	Public	4	2.0
	<b>Total</b>	<b>191</b>	<b>100.0</b>

**4.5.1.2 Reasons for non-disclosure**

Among those who did not disclose, 79% agreed that they were afraid of social stigma and discrimination, while 10% disagreed and 10% remained neutral. Concerning whether fear of divorce was a barrier to disclosure, 26% agreed, 49% disagreed, and 25% were undecided. Only 18 of the 57 respondents were married, with another five cohabiting, and fear of divorce was cited by 15 (83%) as a barrier to disclosure. Concerning the fear of losing a job, 56% disagreed, 26% agreed, and 18% remained silent. However, only 21 of the 57 people had jobs, and 71.4% were fearful of losing their jobs upon disclosure.

When asked if their fear of avoiding stressing their significant others was one of the reasons for nondisclosure, 64.9% agreed, 12.3% disagreed, and 22.8% remained neutral. These findings were expected, but not at such a high percentage, particularly fear of divorce and job loss. The finding backs up previous research that identified fear as the primary barrier to

retention. Stigma was a major factor influencing retention on care at the University of Pennsylvania in the United States, as the majority of patients failed to disclose their status due to fear of discrimination or being shamed, negatively affecting retention (Holtzman et al., 2015). Several studies have found that stigma has a significant impact on the effectiveness of interventions aimed at reducing it.

**Table 4.14**

*Reasons for Non-disclosure*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Afraid of stigma and discrimination by members of the society	Disagreed	6	10.5
	Neutral	6	10.5
	Agreed	45	79.0
Afraid of divorced	Disagreed	28	49.0
	Neutral	14	25.0
	Agreed	15	26.0
Afraid of losing job	Disagreed	32	56.0
	Neutral	10	18.0
	Agreed	15	26.0
Disclosure stresses family members	Disagreed	7	12.3
	Neutral	13	22.8
	Agreed	37	64.9
	<b>Total</b>	<b>57</b>	<b>100.0</b>

**4.5.1.3 Partner HIV status**

The study also looked at partner HIV status, and out of the 248, only 161 said they had sexual partners, while 87 said they were not in any sexual relationships. When further asked about their partner status, 52 (32.3%) of the 161 said they were discordant, 52.7% said their partners were positive, and 15% said they had not yet tested. This means that nearly half of the partners in a relationship are at risk of contracting the virus. In this case, the rate of

discordance is higher than the expected 10%.

**Table 4.15**

*Partner HIV Status*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Partner status	Negative	52	32.3
	Positive	85	52.7
	Not tested	24	15.0
	Total	161	100.0
	Applicable	161	65.0
	Not applicable	87	35.0
	<b>Total</b>		<b>248</b>

#### **4.5.2 Stigma, Social support and responsibilities**

##### **4.5.2.1 Stigma and Social support from family members**

In terms of whether patients receive any support from family members, the majority (65.7%) agreed, 17.3% disagreed, and 16.9% were undecided. When asked if patients face stigma and discrimination from family members, the majority (66.9%) disagreed, 21.8% agreed, and 11.3% remained neutral. However, when the support was limited to spouses, the percentage of those who agreed with the statement fell to 36.7%, those who disagreed rose to 49.2%, and those who were undecided fell to 14.1%.

**Table 4.16***Stigma and Social Support from Family Members*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
My family have accepted my status and fully support me	Disagreed	43	17.3
	Neutral	42	16.9
	Agreed	163	65.7
I have no support from my spouse	Disagreed	122	49.2
	Neutral	35	14.1
	Agreed	91	36.7
I face stigma and discrimination from my family	Disagreed	166	66.9
	Neutral	28	11.3
	Agreed	54	21.8

**4.5.2.2 Social responsibilities**

On whether patients miss clinics due to child care, the majority (77.8%) disagreed, 14.5% agreed, and 7.7% were undecided. Concerning whether care for the elderly or sick parents inhibits people from visiting their clinics, the majority (87.5%) disagreed, 7.7% agreed, and 4.4% remained neutral. When asked if caring for younger siblings interferes with clinical attendance, the majority (85.7%) disagreed, 8.9% agreed, and 5.2% remained neutral. When asked if day-to-day economic activities affected clinic attendance, the majority (75% disagreed), 19.5% agreed, and 5.6% were neutral. In terms of studies as a barrier to clinical attendance, 86.7% disagreed, 8.9% agreed, and 4.4% were undecided. Despite the fact that the majority denied social obligations as barriers to clinic attendance, some percentage did agree that they missed their clinics due to social obligations. Based on the findings, when compared to other social obligations, the number of people missing clinics due to casual work and small business was high. Those in uncommitted marital relationships and who were self-employed were more likely to be LTFU (Mberi et al., 2015).

**Table 4.17***Social Responsibility*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
I sometimes miss clinics due to child care/ schooling	Disagreed	193	77.8
	Neutral	19	7.7
	Agreed	36	14.5
I have elderly/sickly parents who prevent me from attending the clinical appointments	Disagreed	218	87.9
	Neutral	11	4.4
	Agreed	19	7.7
I am also looking after my younger siblings	Disagreed	213	85.9
	Neutral	13	5.2
	Agreed	22	8.9
My family will not get food for that day if I go to the clinic	Disagreed	186	75.0
	Neutral	14	5.6
	Agreed	48	19.4
Sometimes miss the clinics because of my studies	Disagreed	215	86.7
	Neutral	11	4.4
	Agreed	22	8.9

**4.5.3 Drug abuse****4.5.3.1 Use of other drugs**

According to the findings, at least 16% of respondents use other drugs in addition to the ART medication, while the remaining 84% do not. Of those on other drugs, 85% use alcohol, 5 percent use marijuana, 5% use marijuana in conjunction with alcohol, and the remaining 5% use other unspecified drugs. This was expected given that the majority of respondents were from low socioeconomic backgrounds, and thus the findings are consistent with previous scholarly findings. To achieve the best ART therapeutic outcomes, patients must take 95% of their ART drugs exactly as prescribed, and alcohol use was strongly linked to medication non-adherence (Hendershot et al., 2009).

**Table 4.18***Use of Other Drugs*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Do you use any other drug?	Yes	40	16.1
	No	208	83.9
If yes, which drug do you use	Alcohol	34	85.0
	Marijuana	2	5.0
	Marijuana / alcohol	2	5.0
	Other	2	5.0

**4.5.3.2. The impact of drug use on ART adherence**

The study went on to investigate the effect of other drugs on ART adherence and how much they influenced it. Regarding whether patients who are high on other drugs forget to take their medication, the majority (55%) disagreed, 32.2% agreed, and 12.5% were neutral. Based on previous results, this was expected to be higher. Nonetheless, because optimal ART treatment outcomes necessitate patients taking 95% of their ART drugs exactly as prescribed, 32% is still a high enough figure to celebrate. According to a study published in the *Journal of General Internal Medicine*, nearly half of all people living with HIV have reported jumping or stopping their medication while consuming alcohol. In terms of whether patients feel ill when taking ART in conjunction with other medications, the majority (62.5%) disagreed, 32.5% agreed, and 12.5 percent were undecided. 32.5% appeared to be higher, especially with the emergence of newer ART drugs with minimal side effects, particularly for alcohol users unless one is a heavy drinker. When it came to forgetting clinical appointments, half of those polled disagreed, 35% agreed, and 15% were neutral. On the other hand, the proportion of people who do not attend clinical appointments is higher than the proportion of people who do not take medication on time, the proportion of people who are sick, and the proportion of people who take incorrect dosages. On whether patients take the wrong dosage

while under the influence of other drugs, 60% disagreed, 27.5% agreed, and 12.5% remained neutral. According to the findings, other drug use has a significant impact on ART and clinical adherence, posing risks to the survival of HIV patients who use them as they ultimately compromise treatment outcomes. The use of alcohol was strongly linked to medication non-adherence (Hendershot et al., 2009).

**Table 4.19**

*The Impact of Other Drug Use on ART Adherence*

<b>Variable:</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
I usually forget to take my medicine on time when under the influence of drugs	Disagree	22	55.0
	Neutral	5	12.5
	agree	13	32.5
I feel sickly when I take my ARVs with other drugs	Disagree	25	62.5
	Neutral	5	12.5
	agree	10	25.0
I forget about my clinical appointments and ran out of medicine	Disagree	20	50.0
	Neutral	6	15.0
	agree	14	35.0
I sometimes forget the dosage and take the wrong dosage when the under influence of other drugs	disagree	24	60.0
	Neutral	5	12.5
	agree	11	27.5

#### **4.5.4 ART Storage**

When asked if they hide their ART medication under the bed, the majority, (86.7%) disagreed, 5.6% agreed, and 7.7% remained neutral. When asked if they should hide their ART under the seats, the majority 88.3% disagreed, 4.8% agreed, and 6.9% were undecided. When it came to storing ART in specific bags, the majority (60%) agreed, (31.5%) disagreed, and 8.5% were undecided. When it comes to storing ART in the same cupboard as clothes, 46.4% disagreed, 44.8% agreed, and 8.9% were undecided. That means people are still

fearful, which has an impact on how and where ARTs are stored, ultimately affecting adherence and retention.

**Table 4.20**

*ART Storage*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
ARVs medicine are hidden under the bed	Disagreed	215	86.7
	Neutral	19	7.7
	Agreed	14	5.6
ARVs medicine hidden under the seat	Disagreed	219	88.3
	Neutral	17	6.9
	Agreed	12	4.8
ARVs medicine stored in a bag	Disagreed	78	31.5
	Neutral	21	8.5
Medicine stored in the cupboard	Disagreed	115	46.4
	Neutral	22	8.9
	Agreed	111	44.8
	<b>Total</b>	<b>248</b>	<b>100</b>

**4.5.5 Patients perception of HIV/AIDS**

In terms of how patients perceive HIV, when asked if it is the worst illness, a majority (60.5%) believe it is not, 27% alluded to this statement, and 12.5% remained neutral. When asked whether early diagnosis and treatment prevent immune system destruction, 75.4% agreed, 12.1% of respondents disagreed, and the remaining 12.5% remained silent on the matter. ARVs also help people live longer lives, according to 87.5% of respondents. though 5.6% of those polled disagreed on the same, while 6.9% were neutral. 82.7% agreed that HIV is a treatable disease, 7.7% disagreed, and 9.7% were undecided. Concerning social stigma, 69% agreed that stigma and discrimination exist in society, 20.2% disagreed, and 10.9% were undecided. Despite the fact that the majority have accepted HIV/AIDS as a manageable

health condition and that ARVs help great, contrary to my expectations, the majority still feel that there is stigma and discrimination in the society, which is likely to affect ART adherence and care retention if it remains unaddressed.

**Table 4.21**

*Patients' Perception of HIV/AIDS*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
HIV is the worst illness	Disagreed	150	60.5
	Neutral	31	12.5
	Agreed	67	27.0
HIV early diagnosis and treatment prevents immune system destruction	Disagreed	30	12.1
	Neutral	31	12.5
	Agreed	187	75.4
HIV is a manageable health condition just like others	Disagreed	19	7.7
	Neutral	24	9.7
	Agreed	205	82.7
ARVs helps in to living longer with the HIV	Disagreed	14	5.6
	Neutral	17	6.9
	Agreed	217	87.5
	Disagreed	50	20.2
	Neutral	27	10.9
	Agreed	171	69.0
There is stigma and discrimination in the society	<b>Total</b>	<b>248</b>	<b>100</b>

## **4.6 ART care retention**

### **4.6.1 Adherence to clinical appointments**

When it comes to keeping clinical appointments, the majority (64.5%), agreed that they kept their most recent clinical appointment, while 35.5% said they did not. When asked about past missed appointments, 51% agreed to have missed clinical appointments in the past, and 49% disagreed, showing that patients have difficulties keeping their clinical appointments, thus

affecting adherence to ART and care retention. The result was to be expected based on the previous monthly retention reports from the facilities.

**Table 4.22**

*Adherence to Clinical Appointments*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Did you keep your last clinical appointment?	Yes	160	64.5
	No	88	35.5
Did you miss any clinical appointment in the past?	Yes	127	51.2
	No	121	48.8
	<b>Total</b>	<b>248</b>	<b>100</b>

**4.6.2 Reasons for missed appointments**

Work schedules were cited as one of the reasons given by respondents, with 29% saying that being busy caused them to miss clinical appointments, though 65.3% disagreed and 5.6% remained neutral. When asked if they ever forget to go for their medicine, the majority, 72.2%, disagreed, 18.1% agreed, and 9.7% were neutral. When it comes to financial constraints, the majority of participants denied that a lack of fare was a barrier to clinical attendance, while 23.8% agreed and 7.7% remained neutral. When it came to hospital waiting hours, 82.3% disagreed that they were too long, 10.9% agreed that they were too long, and 6.9% were neutral. When asked if they were afraid of being seen by someone known to them, 65.3% said they were not, 25.4% expressed fear, and 9.3% were unsure. In terms of travel as a barrier to appointment keeping, 61.3% disagreed, 31.9% agreed that travel interferes with their clinical schedules, and 6.9% were unsure.

**Table 4.23***Reasons for Missed Appointments*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Busy at work and skips clinical appointments	Disagreed	162	65.3
	Neutral	14	5.6
	Agreed	72	29.0
Forget to go for medicine	Disagreed	179	72.2
	Neutral	24	9.7
	Agreed	45	18.1
Lack of bus fare	Disagreed	170	68.5
	Neutral	19	7.7
	Agreed	59	23.8
Long waiting hours at the hospital	Disagreed	204	82.3
	Neutral	17	6.9
	Agreed	27	10.9
Fear being seen by a person known to patients	Disagreed	162	65.3
	Neutral	23	9.3
	Agreed	63	25.4
Travelled	Disagreed	152	61.3
	Neutral	17	6.9
	Agreed	79	31.9

**4.6.3 Reasons for stopping coming**

Out of the 248 clients who took part in the study, 88 were either defaulters or lost to follow-up. Here, the researcher focused on those 88 clients to determine the reason for care discontinuation. When questioned further, 14 stated that they were no longer on ART. Of the 88 respondents, 71.6% disagreed with having transferred to another facility, 20.4% agreed to transfer to another facility, and 8% were unclear. When asked if they had travelled and borrowed medicine from various facilities, 69.3% said no, 25% said yes, and 5.7% never answered. In terms of job schedules, 70.5% denied that work was the reason they stopped

coming, 22.7% agreed, and 6.8% were neutral. When asked if they defaulted because they were tired of medicine, 81.8% disagreed, 12.5% agreed, and 5.7% were neutral. In terms of pill balance as a reason for not visiting the facility, 80.7% disagreed, 14.8% agreed, and 4.5% were undecided. When asked if they defaulted because they were afraid of being scolded by healthcare workers for missing appointments, 91% disagreed, 4.5% agreed, and another 4.5% were neutral. According to the findings, the vast majority of clients who defaulted or were labelled as "lost to follow up" were either on transit picking up drugs from another facility or had already been transferred out to other facilities. This was to be expected.

**Table 4.24**

*Reasons for Stopping Coming (Defaulters)*

<b>Variable</b>	<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Transferred to another facility	Disagreed	63	71.6
	Neutral	7	8.0
	Agreed	18	20.4
Travelled, and borrowing medicine from another facility	Disagreed	61	69.3
	Neutral	5	5.7
	Agreed	22	25.0
Busy at work	Disagreed	62	70.5
	Neutral	6	6.8
	Agreed	20	22.7
Tired of taking medicine	Disagreed	72	81.8
	Neutral	5	5.7
	Agreed	11	12.5
Have pill balance	Disagreed	71	80.7
	Neutral	4	4.5
	Agreed	13	14.8
Afraid of being scolded by facility staff for coming late other	Disagreed	80	91.0
	Neutral	4	4.5
	Agreed	4	4.5

#### **4.7. Hypothesis testing**

In order to determine the factors influencing patient retention in HIV/AIDS chronic care in Nakuru County, the following hypotheses were tested: The study's dependent variable was HIV care retention. All of the responses on socioeconomic, patient health, health service delivery, and psychological factors influencing HIV care retention were compiled by the researcher. To perform a preliminary assessment of hypotheses, the chi-square test of significance was used. The Chi-square method is commonly used to determine the existence of a relationship between categorical variables. This study's variables are all categorical in nature. The chi-square statistics were obtained using SPSS cross-tabulations. However, it is important to note that correlation does not always imply causality. As a result, logistic regression was used to analyse the cause-and-effect relationship between the study's variables. The results based on the research hypotheses are shown below.

##### **4.7.1. Hypothesis 1**

Cross-tabulating responses to gender, age, marital status, level of education, and occupation of patients attending chronic care clinics in Nakuru county and missing clinical appointments yielded the results shown in Pearson's chi-square format below.

##### ***Relationship between the Age of the respondents and missed clinical appointments***

**H<sub>0</sub>:** In Nakuru County, there is no significant relationship between patient age and missed clinical appointments. Pearson's chi-square  $\chi^2 = 6.120$ ,  $n = 248$ ,  $p = 0.190$  demonstrates that the relationship between age and missed clinical appointments is insignificant. As a result, we fail to reject the null hypothesis at  $p = 0.05$  and conclude that the age of patients attending HIV clinics is not associated with missed clinical appointments in Nakuru county. This finding contradicts previous studies that linked age to care retention. Retention for an adolescent was found to be 65%, and the younger the adolescent (10-14 years), the better the

outcomes (Okoboi et al., 2016). In another study, older adults on ART outperformed their younger counterparts in care at 12, 24, and 36 months in one of the studies done in western Kenya (Kiplagat et al., 2018).

### ***Relationship between gender of respondent and missed clinical appointment***

**H<sub>0</sub>:** There is no statistically significant relationship between patient gender and missed clinical appointments in Nakuru County. The Pearson's chi-square results show that the relationship between gender and missed clinical appointments is insignificant:  $\chi^2 = 0.158$ ,  $n = 248$ ,  $p = 0.691$ . As a result, at  $p = 0.05$ , we fail to reject the null hypothesis and conclude that the gender of patients in chronic care in Nakuru County is not related to missed clinical appointments. However, previous research has linked gender to retention, with sex being found to influence retention in HIV care prior to ART eligibility in Sub-Saharan Africa. Treatment success was also associated more with the female gender than the male gender (Okoboi et al., 2016). Similarly, sex was not found to be a significant predictor of pre-ART linkage in Rwanda (Franse et al., 2017). All previous studies focused on pre-ART and had limited data on ART retention.

### ***Relationship between the marital status of respondents and missed clinical appointments.***

**H<sub>0</sub>:** In Nakuru County, there is no significant relationship between marital status and missed clinical appointments. Pearson's chi-square  $\chi^2 = 4.174$ ,  $n = 248$ ,  $p = 0.383$  indicates that there is no significant relationship between marital status and missed clinical appointments. As a result, at  $p = 0.05$ , we fail to reject the null hypothesis and conclude that the marital status of patients attending HIV clinics in Nakuru County is unrelated to missed clinical appointments. Uncommitted marital relationships were likely to be LTFU (Mberi et al., 2015). Retention was not linked to level of education or marital status in any age group (Brown et al., 2018).

### ***Relationship between the education of the respondents and missed clinical appointments***

**H<sub>0</sub>:** In Nakuru County, there is no statistically significant relationship between patients' educational level and missed clinical appointments. The Pearson's chi-square results show that the relationship between education level and missed clinical appointments is insignificant, ( $\chi^2 = 3.119$ ,  $n = 248$ ,  $p = 0.538$ ). As a result, at  $p = 0.05$ , we fail to reject the null hypothesis and conclude that education level is not related to missed clinical appointments in Nakuru County. It was indicated that those with higher levels of education would communicate more effectively with their providers and would be more likely to make informed decisions and take on more responsibility for their treatment (Gaston, 2013). However, access to reliable information, as well as encouragement to use it, is more critical to treatment success than just education. Patient education, "person-centred care," and patient empowerment improve treatment adherence and retention (Brammer & Millington, 2003). Therefore, the study lends support to another study conducted in Kenya, which discovered no relationship between education level and retention in HIV care (Brown et al., 2018).

### ***Relationship between the occupation of the respondents and missed clinical appointments***

**H<sub>0</sub>:** In Nakuru County, there is a strong link between patients' occupations and missed clinical appointments. Pearson's chi-square  $\chi^2 = 12.337$ ,  $n = 248$ ,  $p = 0.015$ , indicating a significant relationship between occupation and missed clinical appointments. As a result, at  $p = 0.05$ , we reject the null hypothesis and conclude that the occupation of HIV patients is significantly associated with missed clinical appointments in the county. This backs up an earlier scoping review that found employment to be positively associated with progression along the HIV continuum of care (Maulsby et al., 2020). In comparison to age, gender, health condition, and income, the socioeconomic indicator was found to be the most important factor influencing individuals' health-seeking behaviour (Ahmed et al., 2005).

Unemployment was found to be negatively associated with HIV care retention, as it decreased retention (Brown et al., 2018).

#### **4.7.2 Hypothesis 2**

Cross-tabulating responses to point of care entry WHO stages, patients' perceptions of health services at diagnosis, importance of returning, means of follow-up, and perceptions of healthcare providers in Nakuru County and missed clinical appointments yielded the results shown in Pearson's chi-square format below.

##### ***Relationship between HIV mode of testing and missed clinical appointments***

**H<sub>1</sub>:** In Nakuru County, there is no link between the mode of HIV testing and missed clinical appointments. Pearson's chi-square  $\chi^2 = 4.175$ ,  $n = 248$ ,  $p = 0.243$ , indicating that the mode of HIV testing has no relationship with missed clinical appointments. As a result, we fail to reject the null hypothesis at  $p = 0.05$  and conclude that the mode of testing is insignificantly associated with missed clinical appointments in the county. The findings contradict a previous study conducted in western Kenya, which found that the point of testing or entry had an impact on HIV care (Genberg et al., 2018).

##### ***The connection between patients' perceptions of healthcare services and missed clinical appointments***

**H<sub>1</sub>:** In Nakuru County, there was a strong relationship between patients' perceptions of healthcare services received at entry and subsequent clinical HIV appointments, with patients tested through the provider-initiated method who felt they were not treated for the reason they came to the hospital being less likely to return for appointments. Pearson's chi-square  $\chi^2 = 12.664$ ,  $n = 248$ ,  $p = 0.002$ , indicating that patients' perceptions of received healthcare services have a significant impact on missed clinical appointments. As a result, at  $p = 0.05$ ,

we reject the null hypothesis and conclude that missed clinical appointments in the county are significantly related to patients' perceptions of healthcare service. Another study found a link between ART non-adherence and patients' perceptions of a lack of attention or empathy from providers, as well as the provider's failure to recognize their health care needs (Shabalala et al., 2018).

### ***Relationship between Initial WHO stage and missed clinical appointments***

**H<sub>1</sub>:** The discovery revealed that the initial WHO stage had an effect on missed clinical appointments. Pearson's chi-square  $\chi^2 = 10.433$ ,  $n = 248$ ,  $p = 0.015$ , suggesting that the initial WHO stage affects missed clinical appointments. As a result, we reject the null hypothesis at  $p = 0.05$  and conclude that missed clinical appointments in the county are significantly related to patients' initial WHO stages. In contrast to previous findings, this study found that those diagnosed later are more likely to miss appointments than those diagnosed earlier. In Uganda, the majority of those who were lost to follow-up were in the early stages of the disease (Opio et al., 2019). Similarly, in Tanzania, good health status hampered HIV testing, a lack of trust in traditional medicine and belief in the efficacy of ART facilitated it (Layer et al., 2014). However, the study lends support to another study that found that severe illness at the time of care entry or ART initiation, or full-blown HIV disease at the time of ART initiation, is the primary predictor of attrition in Addis Ababa, Ethiopia (Mekuria et al., 2015).

### ***The relationship between patients' willingness to continue receiving treatment and missed clinical appointments***

**H<sub>1</sub>:** In Nakuru County, there was a strong correlation between patients' desire to continue receiving treatment and missed clinical appointments. The number of missed appointments

was fewer among those who felt it was important to continue with treatment. Pearson's chi-square  $\chi^2=4.417$ ,  $n = 248$ ,  $p = 0.036$ , indicating that patients' attendance at HIV care clinics is influenced by their belief in the importance of treatment. As a result, we reject the null hypothesis at  $p = 0.05$  and conclude that missed clinical appointments in the county are significantly associated with the value patients place on treatment, as revealed by earlier studies. Deteriorating health and fear of death, as well as the desire to live, were previously identified as facilitators of HIV care entry and ultimate retention (Amirkhanian et al., 2018), where patients' perceived needs and beliefs, as well as the value placed on their own health, influenced subjective acknowledgement (Holtzman et al., 2015).

#### ***The connection between preferred methods of follow-up and missed clinical appointments***

**H<sub>1</sub>:** In Nakuru County, there is a statistically significant relationship between patients' preferred method of follow-up and missed clinical appointments. Although both those who missed appointments and those who kept appointments preferred phone calls and short messages for follow-up, those who missed appointments demonstrated a greater need to be followed up on than those who did not miss any appointments at all. The Pearson's chi-square results  $\chi^2 = 11.535$ ,  $n = 248$ ,  $p = 0.021$  show that there is a significant relationship between the preferred method and missed clinical appointments. As a result, we reject the null hypothesis at  $p = 0.05$  and conclude that the preferred method of follow-up used in Nakuru County is strongly related to missed clinical appointments. Previous data on this was limited.

#### ***Relationship between Healthcare workers friendliness and missed clinical appointment***

**H<sub>1</sub>:** There is a clear link between healthcare workers' friendliness and missed clinical appointments in Nakuru County. The majority of those who stated that healthcare was unfriendly to them also missed appointments. Pearson's chi-square  $\chi^2 = 9.770$ ,  $n = 248$ ,  $p =$

0.002, indicating a very strong relationship between perceived friendliness of providers and missed clinical appointments. As a result, we reject the null hypothesis at  $p = 0.05$  and conclude that the attitude of healthcare workers in the county is not significantly associated with missed clinical appointments. This backs up previous findings in which rudeness and a lack of information on the part of patients were blamed on a lack of guidance on the part of providers (Layer et al., 2014). In one study, staff unprofessionalism in clinics was found to have a negative impact on care retention. (Opio et al., 2019).

### **4.7.3 Hypothesis 3**

The results of cross-tabulating responses to views of facility services, how long patients waited to enrol, waiting time, opinion about the clinic flow, the time taken to reach the facility, cost of transport to the clinic, and challenges of getting off days to attend clinics in Nakuru County and honouring the last clinical appointments are shown in Pearson's chi-square format below.

*The relationship between keeping the last clinical appointments and the facility's facility perception of its services.*

**H<sub>2</sub>:** According to Pearson's chi-square  $\chi^2 = 2.461$ ,  $n = 248$ ,  $p = 0.117$ , the study found no relationship between last appointment keeping and services provided at the clinic in Nakuru County. As a result, we fail to reject the null hypothesis at  $p = 0.05$  and conclude that the facility's services are insignificantly associated with keeping clinical appointments in the county. The findings back up previous research that found no difference in retention between private and public hospitals (Umeokonkwo et al., 2019).

***The relationship between the length of time patients wait to enrol and whether or not they keep their most recent clinical appointments***

**H<sub>2</sub>:** According to Pearson's chi-square  $\chi^2 = 21.721$ ,  $n = 248$ ,  $p = 0.298$ , the study found no relationship between the last appointment kept and how long patients take to enrol in clinical care in Nakuru County. As a result, we fail to reject the null hypothesis at  $p = 0.05$  and conclude that how long patients take to enrol in an HIV care clinic is unrelated to keeping clinical appointments in the county. The study's findings backed up an earlier finding that showed no difference between time of enrolment and subsequent HIV care retention (Brown et al., 2018).

***The relationship between keeping the last clinical appointments and time spent at the facility***

**H<sub>2</sub>:** Pearson's chi-square  $\chi^2 = 3.357$ ,  $n = 248$ ,  $p = 0.500$  revealed no relationship between keeping last clinical appointments and waiting time at the Nakuru County clinic. As a result, at  $p = 0.05$ , we fail to reject the null hypothesis and conclude that time spent in hospitals is insignificantly related to keeping clinical appointments in the county. Long waiting times were mentioned in one study as one of the factors that hampered retention (Holtzman et al., 2015).

***The connection between keeping the last clinical appointments and having a good view of clinic flow***

**H<sub>2</sub>:** In Nakuru County, there is no clear relationship between clinic flow and clinical appointment keeping. Pearson's chi-square  $\chi^2 = 2.920$ ,  $n = 248$ ,  $p = 0.232$ , indicating that there is no relationship between keeping the last clinical appointment and good view of clinic flow. As a result, we are failing to reject the null hypothesis and conclude that the view of clinic

flow in the county is insignificantly related to appointment keeping. There is limited data on this variable.

***Relationship between keeping the most recent clinical appointment and the amount of time it takes to get to the facility***

**H<sub>2</sub>:** In Nakuru County, there is a clear relationship between keeping the last clinical appointment and the time it takes to get to the facility. Pearson's chi-square  $\chi^2 = 10.417$ ,  $n = 248$ ,  $p = 0.034$ , indicating a strong relationship between keeping the last clinical appointment and the time taken to reach the facility for care services. As a result, we reject the null hypothesis and conclude that the time it takes to access care and treatment services is significantly related to keeping appointments. This study adds to previous research that has linked distance to optimal care outcomes (Terzian, 2018). Losina et al. (2010) discovered that clients who lived more than 10 kilometres from the health center were more likely to be lost to follow-up. Higher rates of lost to follow-ups were clients living  $\geq 10$  km from the health centre. The distance between the health facility and the associated costs have been identified as barriers to retention (Tuller et al., 2010).

***The relationship between keeping the most recent clinical appointments and the cost of transportation***

**H<sub>2</sub>:** There is a strong correlation in Nakuru County between keeping the last clinical appointment and the cost of transportation to the facility. Pearson's chi-square  $\chi^2 = 21.180$ ,  $n = 248$ ,  $p = 0.000$ , shows a strong relationship between keeping the most recent clinical appointment and the cost of transportation to the facility for care services. As a result, we reject the null hypothesis and conclude that the cost of transportation to care and treatment services is significantly related to appointment keeping. Previous research suggested that

transportation costs can jeopardize ARV adherence as well as access to care (Tuller et al., 2010). The cost of transportation to and from health facilities during follow-up visits was identified as a factor contributing to low retention (Janssen et al., 2015). Fare reimbursements influence the retention of HIV patients, and number of returnees to the hospital for care is determined by the availability of fare reimbursements (Gichuru, 2016).

***The link between having difficulty arranging time off to attend clinics and keeping the most recent clinical appointments***

**H<sub>2</sub>:** There is no correlation in Nakuru County between keeping the last clinical appointment and the difficulties of getting off days. Pearson's chi-square  $\chi^2 = 0.961$ ,  $n = 248$ ,  $p = 0.327$ , demonstrating no link between keeping the last clinical appointment and the challenges of getting time off to attend clinics. As a result, we fail to reject the null hypothesis and conclude that having difficulty scheduling time off to attend clinics is unrelated to keeping appointments. A previous study found no link between job stress and the workplace. Instead, disclosure to the managers influenced adherence. Relationships between having challenges getting off days to attend clinics and keeping the most recent clinical appointment (Torres-Madriz et al., 2011).

#### **4.7.4 Hypothesis 4**

The results of cross-tabulating responses to disclosure status, who the patients disclosed to, and the partner's HIV status in the county, as well as honouring last clinical appointments, are shown in Pearson's chi-square format below.

***Relationship between disclosure status and keeping the most recent clinical appointments***

**H<sub>3</sub>:** In Nakuru County, there is no link between keeping the most recent clinical appointment and disclosing one's HIV status. Pearson's chi-square  $\chi^2 = 1.777$ ,  $n = 248$ ,  $p = 0.183$ ,

indicating that there is no relationship between keeping the last clinical appointment and the disclosure status. As a result, we fail to reject the null hypothesis and conclude that the disclosure status of adult patients attending an HIV clinic is unrelated to appointment attendance in the county. The study contradicts previous findings that linked disclosure to care retention, stating that HIV status disclosure was an important factor related to retention in care in various hospitals (Umeokonkwo et al., 2019). In Kenya, disclosure counselling has been found to aid in care retention (Gichuru, 2016).

***Relationship between whom the patients disclosed their HIV status to and keeping the most recent clinical appointments***

**H<sub>3</sub>:** In Nakuru County, there is no link between keeping the most recent clinical appointment and who patients disclose their status to. Pearson's chi-square  $\chi^2 = 4.133$ ,  $n = 248$ ,  $p = 0.659$ , revealing that there is no relationship between keeping the most recent clinical appointment and the person to whom one discloses their status. As a result, we fail to reject the null hypothesis and conclude that the person to whom patients disclose their status has no relationship with maintaining the most recent clinical appointment among patients attending HIV clinic in Nakuru County. The findings back up an earlier study that found no negative consequences for women who disclosed their HIV status to their sexual partners (Damian et al., 2019). It does, however, contradict (Mukumbang et al., 2017) who reported that non-disclosure of one's HIV status and stigma are among the barriers to care.

***Relationship between the partner's HIV status and keeping up with the most recent clinical appointments***

**H<sub>3</sub>:** In There is no link between a partner's HIV status and keeping up with the most recent clinical appointments in Nakuru County. Pearson's chi-square  $\chi^2 = 1.088$ ,  $n = 248$ ,  $p = 0.780$ ,

suggesting that there is no relationship between keeping the most recent clinical appointment and one's HIV status, As a result, we fail to reject the null hypothesis and conclude that a sexual partner's HIV status has no relationship with maintaining the most recent clinical appointment among patients attending an HIV clinic in Nakuru County. (Afolaranmi et al., 2021) reported that poor retention in HIV care was associated with knowledge of the male partner's status.

#### **4.8. Regression Analysis**

To determine the influence of each factor on patients' retention in HIV chronic care as presented as presented in the research objectives, regression analysis was performed employing binary logistic. Logistic regression is appropriate when the dependent variable is binary in nature. That is, the dependent variable must have mutually exclusive outcomes. In this study, the dependent variable was patients' retention in HIV chronic care, which was measured in terms of whether or not a patient had missed any clinical appointments in the past. The results of the analysis based on each objective were as follows:

##### **4.8.1 The influence of Socioeconomic factors on patients' retention in HIV care**

The first objective of this study was to investigate the influence of socioeconomic factors on patients' retention in HIV chronic care in Nakuru County. To achieve this objective, logistic regression was fitted to the collected data using SPSS version 26. The results of the analysis are presented in Table 4.25.

**Table 4.25***Socioeconomic Factors Influencing the Retention of Patients in HIV Care*

<b>Variable</b>	<b>B</b>	<b>S.E.</b>	<b>P- Value</b>	<b>Odds</b>	<b>Ratio</b>
<b>Gender</b>					
Female (RC)				1.000	
Male	0.228	0.306	0.039	1.2561	
<b>Marital Status</b>					
Single (RC)				1.000	
Married	0.552	0.391	0.000	1.737	
Cohabiting	0.453	0.737	0.000	1.573	
Widowed	0.908	0.54	0.093	2.480	
Divorced	0.855	0.512	0.095	2.350	
<b>Age</b>					
50 and Above (RC)				1.000	
15-19 Years	-1.51	1.146	0.188	0.221	
20-29 Years	-0.31	0.487	0.524	0.733	
30-39 Years	-0.155	0.39	0.690	0.856	
40-49 Years	-0.25	0.402	0.006	0.779	
<b>Occupation</b>					
Unemployed (RC)				1.000	
Employed	-0.014	0.327	0.045	0.986	
Casual Labourers	-0.002	0.383	0.036	0.998	
<b>Education</b>					
Tertiary (RC)				1.000	
Secondary	-0.498	0.745	0.000	0.608	
Primary	-0.153	0.479	0.000	0.858	
No Education	-0.078	0.47	0.000	0.925	

The results of the analysis indicated that there is a significant relationship between gender and patients' retention in HIV chronic care facilities in Nakuru County. As expected, male patients were 1.2561 times more likely to miss appointments in HIV chronic care facilities when compared to their female counterparts. The results were significant at 5% level. The

findings are in agreement with those of previous researchers who established that gender influences retention in HIV care (Plazy et al., 2015) and that male gender was associated with non-enrollment to HIV care clinics after the initial diagnosis in a cohort study (38%) compared to women in Uganda (Nakigozi et al., 2013) . The findings also confirm those of Okoboi et al., (2016) who established that treatment successes were positively associated with female gender than their male counterparts in Kenya.

The results also indicated that a significant relationship exists between marital status and patients' retention in chronic health care facilities. The odds of missing appointments were higher among patients who were living with a partner when compare with patients who were single. Results were significant at 5% level. However, being widowed or divorced was not significantly associated with the odds of retention in HIV chronic care facilities. 83.6% of HIV-infected Kenyans in marital relationships or cohabitating partners are not aware of their status (Kaiser et al., 2011).

In terms of age, being aged between 40-49 years was significantly associated with the odds of missing appointments in HIV chronic care facilities. Patients aged 40-49 years were 0.779 times less likely to miss appointments when compared to the aged patients 50 and above years. The results were significant at 5% level. The findings agree with those of Kiplagat et al. (2018) who established that older women are more likely to be retained in healthcare facilities when compared to young ones. This is contrary to studies done in Rwanda that revealed no relationship between care retention and age or sex (Franse et al., 2017).

The results further indicated that occupation is significantly associated with patients' retention in HIV chronic care facilities in Nakuru county. The odds of missing appointments in HIV chronic care facilities reduced with increased prospects for employment. Casual labourers were 0.998 times less likely to miss clinical appointments when compared to those

who were unemployed, while employed persons were 0.986 times less likely to miss clinical appointments when compared to those who are unemployed. The findings were significant at 5% level. The results were as expected since studies elsewhere found a significant relationship between occupation and health-seeking behaviours. Both occupation and education levels were attributed to the inequality reported in accessing ART, treatment adherence, and outcomes. People of low socioeconomic status are likely to start treatment early, while their wealthy counterparts are likely to adhere and have better treatment outcomes (Luo et al., 2016). The results further indicated that the level of education is significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. The odds of missing appointments in HIV chronic care facilities reduce as one's education level increases

#### **4.8.2 Relationship between patients' health condition at diagnosis and their retention in HIV chronic care facilities**

The second objective of this study was to investigate the influence of patients' health condition at diagnosis on their retentions in HIV chronic care facilities in Nakuru County. To achieve this objective, logistic regression was done using SPSS version 26. The results of the analysis are presented in Table 4.26.

**Table 4.26**

*Relationship Between Mode of Testing, who Stages and Their Retention in HIV Chronic Care Facilities*

<b>Variable</b>	<b>B</b>	<b>S.E.</b>	<b>P-Value</b>	<b>Odds Ratio</b>
<b>Mode of Testing</b>				
Others (RC)				1.000
PITC	0.063	0.585	0.914	1.065
VCT	0.408	0.584	0.485	1.504
PMCT	0.655	0.624	0.294	1.925
<b>Initial WHO stage</b>				
Stage 1(RC)				1.000
Stage 2	-0.604	1.167	0.000	0.547
Stage 3	-0.783	1.216	0.000	0.457
Stage 4	-0.825	1.413	0.000	0.438
<b>Mode of Clinical Reminders</b>				
None (RC)				1.000
SMS	-1.523	0.982	0.899	0.218
Phone Call	-2.774	0.954	0.695	0.062
Home Visits	-2.304	0.937	0.492	0.100

The results presented in Table 4.8.2 indicate that there is a significant relationship between patients' health condition in terms of disease stages at the time of diagnosis and patients' retention in HIV chronic care facilities in Nakuru County. Patients who were sick at the time of HIV diagnosis were 0.967 times less likely to miss clinical appointments when compared to their counterparts who were healthy at HIV chronic care facility in Nakuru County. The results were significant at 5% level.

The results further indicated that the stage of HIV illness is significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. The odds of missing clinical appointments reduce as patients progress to the next stage of HIV-related illness.

Patients who were at stage 2 of HIV illness were 0.547 times less likely to miss clinical appointments when compared to their counterparts who are currently at stage 1 of HIV illness. Those in stage 3 were 0.457 times less likely to miss clinical appointments when compared to their counterparts in stage 1, while patients in stage 4 of HIV illness were 0.438 times less likely to miss clinical appointment when compared to those in stage 1. These results were significant at 5% level.

The findings are in agreement with those of previous studies, which have revealed that being healthy, having no symptoms of HIV disease, and low value for one's health was likely to delay or discontinue care. On the other hand, personal nature including caring about one's health and perceived support from family and HIV-positive peers, and deteriorating health, and fear of death, as well as the desire to live, were reported as facilitators of HIV care entry and ultimate retention (Amirkhanian et al., 2018). Patients believed that mild illnesses did not need medical care, and go to the hospital only when the condition worsened or failed to improve (Webair & Bin-Gouth, 2013). People utilize formal health institutions only for severe medical conditions (Adhikari & Rijal, 2015). Similarly, patients perceived needs and beliefs, as well as the value placed on their own health, influenced the subjective acknowledgement (Holtzman et al., 2015).

The majority of lost to follow-up in Uganda were in the early stages of the disease (Opio et al., 2019). Similarly, where good health status hindered HIV testing, a lack of trust in traditional medicine and belief in ART effectiveness facilitated it in Tanzania (Layer et al., 2014). Severe illnesses at care entry or ART initiation or full-blown HIV disease at the ART start was found to be the principal predictor of attrition in Addis Ababa, Ethiopia (Mekuria et al., 2015).

However, the study did not find any significant relationship between mode of testing, clinical reminders, and patients' retention in HIV chronic care facilities in Nakuru County.

#### **4.8.3 The influence of health service delivery on patients' retention in HIV care**

The third objective of this study was to investigate the influence of health service delivery on patients' retention in HIV chronic care in Nakuru County. To achieve this objective, logistic regression was done using SPSS version 26. The results of the analysis are presented in Table 4.27

**Table 4.27**

*The Influence of Health Service Delivery on Patients' Retention in HIV Care in Nakuru County.*

<b>Variable</b>	<b>B</b>	<b>S.E.</b>	<b>P-Value</b>	<b>Odds Ratio</b>
<b>Health care workers are friendly</b>				
Yes (RC)				1.000
No	0.897	1.22	0.018	2.452
<b>Quality of Services</b>				
Fair (RC)				1.000
Good	-0.375	0.409	0.043	0.687
<b>Time spends in the clinic in Last Visit</b>				
More than 3 hours (RC)				1.000
Less than 30 Minutes	-0.908	1.571	0.024	0.403
30 minutes to 1 hour	-0.446	1.562	0.017	0.640
one to two Hours	-0.370	1.583	0.034	0.691
Two to three Hours	-0.360	1.726	0.019	0.698
<b>Time taken to the clinic</b>				
More Than 3 hours				1.000
Less than 30 Minutes	-0.912	1.927	0.004	0.402
30 minutes to 1 hour	-0.402	1.902	0.001	0.669
One to two Hours	-0.358	1.895	0.005	0.699
Two to three Hours	-0.332	1.858	0.007	0.717
<b>Fare to the Clinic</b>				
More than 300Ksh (RC)				1.000
None	-0.982	0.988	0.032	0.375
50-100Kshs	-0.401	0.868	0.044	0.669
100-200	-0.137	0.853	0.003	0.872
200-300	-1.575	0.961	0.001	0.207
<b>Off day Challenges</b>				
No (RC)				1.000
Yes	0.105	0.328	0.048	1.111

The results indicated that health service delivery is a statistically significant factor influencing patients' retention in HIV chronic care facilities in Nakuru County. As shown in Table 4.9, the odds of missed appointments which was the indicator for patients' retention in HIV chronic care facilities, increased as health workers tended to be unfriendly. In facilities where health workers were not friendly, patients were 2.452 times more likely to miss clinical appointments when compared to facilities where health workers tended to be friendly. The results were significant at 5% level. The results also indicated that, quality of service is a significant factor influencing patients' retention in HIV chronic care facilities in Nakuru County. In facilities where the quality of services was good, patients were 0.687 times less likely to miss clinical appointments when compared to facilities where quality of service was rated fair. The results were significant at 5% level of significant.

Further, the results of the analysis showed that time spent in the facility during the last clinical visit was significantly associated with patients' retention in HIV chronic care. The odds of missing clinical appointments increased as time taken in the facility during the last visit increased. In facilities where service took less than 30 minutes, patients were 0.403 times less likely to miss appointments when compared to facilities where patients took more than 3 hours. In facilities where patients spent between 30 minutes and 1 hour, patients were 0.640 times less likely to miss clinical appointments when compared to facilities in which patients took an average of more than 3 hours to serve the patients. In facilities where patients, took between 1 and 2 hours to be served, the patients were 0.691 times less likely to miss appointments in clinics which took more than 3 hours to serve the patients, while patients were 0.698 times less likely to miss appointments in clinics which took 2 to 3 hours to serve a patient when compared to patients attending facilities that took more than 3 hours to serve a patient. These results were significant at 5% level.

In terms of time duration to the health facility, the results of the analysis indicated that, indeed, a significant relationship exist between the time taken to reach the health facility and patient retention in that facility. The odds of missing clinical appointments increased as the time taken to reach the facility increased. Where patients took less than 30 minutes to reach the facility, they were 0.402 times less likely to miss appointments when compared to facilities where patients took more than 3 hours to arrive. Where patients took between 30 minutes and 1 hour to arrive at the health care facility, they were 0.669 times less likely to miss clinical appointments when compared to patients in facilities where they spend more than 3 hours to arrive. In facilities where patients took between 1 and 2 hours to arrive, the patients were 0.699 times less likely to miss appointment when compared to patients who took more than 3 hours to arrive at the health care facility, while in facilities where patients took 2 to 3 hours to arrive, they were 0.717 times less likely to miss clinical appointments when compared to patients who took more than 3 hours to arrive at the health facility. These results were significant at 5% level.

The results also indicated that there is a significant relationship between challenges in securing off days and patients' retention in HIV chronic care facilities. Patients who reported that they had difficulties getting off days to seek medical care were 1.111 times more likely to miss clinical appointments when compared to their counterparts who did not have such challenges. The results were significant at 5% level.

The findings agree with other previous studies that associated service delivery factor with care retention. In southern New England, healthcare providers competence and attitude towards patients were among the barriers reported (Grau et al., 2017). Sub-optimal care has been reported as a reason for ART discontinuation (Shabalala et al., 2018). Provider rudeness, failure to give proper directions to service delivery points, and information were

also reported as barriers in Tanzania (Layer et al., 2014). Long hospital hours, lack of courtesy from service providers, and unfriendly clinical schedules hindered returns to care (Holtzman et al., 2015). Health service organization, Resources, physical environment, and intra-organizational communication affects HIV care continuum (Grau et al., 2017). In Kenya, Rachlis also reported patient-provider relationship, sub-optimal counselling, provider unavailability, perceived health facility stigma, and unfriendly schedules as negative efforts against care retention (Rachlis et al., 2016).

#### **4.8.4 The influence of psychosocial factors on patients’ retention in HIV care in Nakuru County**

The last objective of this study was to investigate the influence of psychological factors on patients’ retention in HIV chronic care facilities in Nakuru County. To achieve this objective, logistic regression was done using SPSS version 26. The results of the analysis are as presented in Table 4.28

**Table 4.28**

*The Influence of Psychological Factors on Patients’ Retention in HIV Chronic Care Facilities in Nakuru County*

<b>Variable</b>	<b>B</b>	<b>S.E.</b>	<b>P-value</b>	<b>Odds Ratio</b>
<b>Disclosed HIV Status</b>				
Yes (RC)				1.000
No	0.580	0.354	0.001	1.787
<b>Status of the Partner</b>				
No Disclosed (RC)				1.000
Negative	-0.459	0.385	0.234	0.632
Positive	-0.337	0.334	0.314	0.714
Not Tested	-0.52	0.506	0.304	0.595

As shown in Table 4.8.4 psychosocial factors are significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. Patients who indicated that they had never disclosed their HIV status to anyone were 1.787 times more likely to miss clinical appointments when compared with their counterparts who disclosed their HIV status. The results were significant at 5% level. However, the study did not establish any significant relationship between the status of a partner and prospects for missing clinical appointments in HIV chronic care facilities in Nakuru County. The findings are in agreement with previous studies that associated disclosure with ART retention. Failure to disclose one's HIV status and stigma were among the barriers to care (Mukumbang et al., 2017). HIV status disclosure was an important factor related to retention in care in different hospitals (Umeokonkwo et al., 2019).

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This section presents an overview of key findings derived from the analyzed data. The conclusions of the study are also clearly presented. The chapter ends by giving clear recommendations for policy, programs and further research.

#### 5.2 Summary of Findings

The study was geared towards exploring the factors influencing patients' retention in HIV chronic care in Nakuru County. To achieve this objective, the following research questions were formulated:

- i. To what extent do socioeconomic factors impact on patients' retention in HIV care in Nakuru County?
- ii. To what extent does a patient's health condition influence her or his retention in care in Nakuru County?
- iii. How do the service delivery factors influence patients' retention in HIV care in Nakuru County?
- iv. To what limit do the psychosocial issues affect retention of patients in HIV care in Nakuru County?

##### 5.2.1 Impact of socio-economic factors on patients' retention in HIV care

The results of the analysis indicated that there is a significant relationship between gender and patients' retention in HIV chronic care in facilities in Nakuru County. As expected, male patients were 1.2561 times more likely to miss appointments in HIV chronic care facilities when compared to their female counterparts.

The results also indicated that a significant relationship exists between marital status and patients' retention in chronic health care facilities. The odds of missing appointments were higher among patients who were living with a partner when compared with patients who were single. Results were significant at 5% level. However, being widowed or divorced was not significantly associated with the odds of retention in HIV chronic care facilities. 83.6% of HIV-infected Kenyans in marital relationships or cohabitating partners are not aware of their status (Kaiser et al., 2011).

In terms of age, being aged between 40-49 years was significantly associated with the odds of missing appointments in HIV chronic care facilities. Patients aged 40-49 years were 0.779 times less likely to miss appointments in HIV chronic care facilities when compared to the aged patients 50 and above years. The results were significant at 5% level. The findings agree with those of Kiplagat et al. (2018) who established that older women are more likely to be retained in healthcare facilities when compared to the young. This is contrary to studies done in Rwanda that revealed no relationships between care retention and age or sex (Franse et al., 2017).

The results further indicated that occupation is significantly associated with patients' retention in HIV chronic care facilities in Nakuru county. The odds of missing appointments in HIV chronic care facilities reduced with increased prospects for employment. Casual labourers were 0.998 times less likely to miss clinical appointments when compared to those who are unemployed, employed persons were 0.986 times less likely to miss clinical appointments when compared to those who are unemployed. The findings were significant at 5% level.

The results further indicated that the level of education is significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. The odds of missing

appointments in HIV chronic care facilities reduces as one's education level increases. The results further indicated that the stage of HIV illness is significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. The odds of missing clinical appointments reduce as patient progress to the next stage of HIV-related illness.

Further, the results of the analysis showed that time taken in the facility during the last is clinical visit was significantly associated with patients' retention in HIV chronic care facilities. The odds of missing clinical appointments increase as both the time taken to reach the facility and time spent in the facility during the last visit increase. Those who took the shortest time to reach the facility and those who were served quickly were less likely to miss appointments. The results also indicated that there is a significant relationship between challenges in securing off days and patients' retention in HIV chronic care facilities. Patients who reported that they had difficulties getting off days to seek medical care were 1.111 times more likely to miss clinical appointments when compared to their counterparts who did not have such challenges. The odds of missing clinical appointments increase with non-disclosure. Patients who indicated that they had never disclosed their HIV status to anyone were 1.787 times more likely to miss clinical appointments when compared with their counterparts who disclosed their HIV status.

### **5.2.2 Influence of patients' health conditions on their retention in HIV care**

The results showed that a significant relationship exists between prior treatment of HIV-related illness and patients' retention in HIV chronic care facilities in Nakuru County. Patients who had ever gone for treatment at any HIV chronic care facility were 0.967 times less likely to miss clinical appointments when compared to their counterparts who had never gone for treatment at an HIV chronic care facility in Nakuru County. The results further indicated that the stage of HIV illness is significantly associated with patients' retention in

HIV chronic care facilities in Nakuru County. The odds of missing clinical appointments reduce as patients progress to the next stage of HIV-related illness. Patients who were at stage 2 of HIV illness were 0.547 times less likely to miss clinical appointments when compared to their counterparts who are currently at stage 1 of HIV illness. Those in stage 3 were 0.457 times less likely to miss clinical appointments when compared to their counterparts in stage 1, while patients in stage 4 of HIV illness were 0.438 times less likely to miss clinical appointments when compared to those in stage 1. These results were significant at 5% level. and deteriorating health and fear of deaths, as well as the desire to live, were reported facilitators of HIV care entry and ultimate retention (Amirkhanian et al., 2018).

### **5.2.3 Influence of service delivery factors on patients` retention in HIV care**

The results indicated that health service delivery is a statistically significant factor influencing patients' retention in HIV chronic care facilities in Nakuru County. The odds of missed appointments increased as health workers tended to be unfriendly. In facilities where health workers were not friendly, patients were 2.452 times more likely to miss clinical appointments when compared to facilities where health workers tended to be friendly.

Quality of service is a significant factor influencing patients' retention in HIV chronic care facilities in Nakuru County. In facilities where the quality of service was good, patients were 0.687 times less likely to miss clinical appointments when compared to facilities where quality of service was rated fair. The results were significant at 5% level of significant. The time taken in the facility during the last visit turned out to be a significant determinant of patients' retention in HIV chronic care facilities. The odds of missing clinical appointment increased as time spent in the facility during the last visit increased.

In terms of time duration to the health facility, the results of the analysis indicated that, indeed, a significant relationship exists between the time taken to reach the health facility and

patients retention in that facility. The odds of missing clinical appointments increased as the time taken to reach the facility increased. Further, the results showed a significant relationship between challenges in securing off days and patients' retention in HIV chronic care facilities. Patients who reported that they had difficulties getting off days to seek medical care were 1.111 times more likely to miss clinical appointments when compared to their counterparts who did not have such challenges.

#### **5.2.4 Influence of psychosocial issues on patients' retention in HIV care**

The last objective of this study was to investigate the influence of psychological factors on patients' retention in HIV chronic care facilities in Nakuru County. The outcome of the study demonstrated that psychological factors are significantly associated with patients' retention in HIV chronic care facilities in Nakuru County. Patients who indicated that they had never disclosed their HIV status to anyone were 1.787 times more likely to miss clinical appointments when compared with their counterparts who had disclosed their HIV status. The results were significant at 5% level. However, the study did not establish any significant relationship between the status of a partner and prospects for missing clinical appointments in HIV chronic care facilities in Nakuru County.

### **5.3 Conclusions**

The study provides insight on the status of patients' retention in HIV chronic care facilities, with particular focus on Nakuru County. It highlights factors that influence patients' retention in chronic care facilities. Based on the findings of the study, patients' retention in HIV chronic care facilities in Nakuru County is influenced by multiple factors namely: socio-economic factors, patients' health conditions, service delivery, and psychosocial factors. Based on the findings of the study, the sociodemographic factors influencing patients' retention in HIV chronic care facilities in Nakuru County were: patients' gender, marital

status, occupation, level of education, Age, stage of HIV illness, time taken to the facility, and disclosure of one's status.

The study also found that the patients' health conditions influencing retention at HIV chronic care facilities were: prior treatment experience and the state of the HIV illness. Service delivery factors influencing patients' retention in HIV chronic care facilities were the friendliness of service providers, the existing quality of service at the facility, the time taken to the health facility, and whether the patient can secure off days at the place of work. Lastly, the study concluded that the psychosocial factors influencing patients' retention at HIV chronic and care facilities were disclosure of the HIV status.

#### **5.4 Recommendations**

In line with the findings of this investigation, the following key recommendations are made:

##### **Program recommendations**

- Programs targeting HIV prevention and care should be intensified at the county level since the war on HIV is far from over.
- The programs should focus on service delivery factors like providers' attitudes by implementing quality improvement approaches at HIV chronic care facilities since the study established that these factors are associated with patients' retention in the facilities
- Employers with HIV-positive workers should also be sensitized to offer their sick employees' day off to seek health care, and all organizations should have a workplace policy governing the same
- The government and non-governmental organisations need decentralize services further to minimise the time taken to the facility since duration to and at the facility were found to be associated with patients' retention

### **Policy Recommendation**

- The county government should ensure that policies prohibiting stigmatisation of HIV patients seeking care at health facilities are fully implemented.

### **Recommendations for further research**

- This research was conducted in HIV chronic care facilities in Nakuru County. Future research should consider targeting other counties

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## APPENDICES

### Appendix I: Informed Consent

Kenya Methodist University  
P. O Box 267-60200  
MERU, Kenya

#### SUBJECT: INFORMED CONSENT

#### Dear Respondent,

My names is Qabale Nura, I am an MSc student from Kenya Methodist University. I am conducting a study titled: Factors influencing patients' retention in HIV chronic care in Nakuru county facilities and the findings will be utilized to strengthen the health systems in Kenya and other Low-in-come countries in Africa. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This research proposal is critical to strengthening health systems as it will generate new knowledge in this area that will inform decision-makers to make research-based decisions.

#### Procedure to be followed

Participation in this study will require that I ask you some questions and also access all the hospital's department to address the six pillars of the health system. I will record the information from you in a questionnaire checklist. You have the right to refuse participation in this study. You will not be penalized nor victimized for not joining the study and your decision will not be used against you nor affect you at your place of employment. Please remember that participation in the study is voluntary. You may ask questions related to the study at any time. You may refuse to respond to any questions and you may stop an interview at any time. You may also stop being in the study at any time without any consequences to the services you are rendering.

#### Discomforts and risks.

Some of the questions you will be asked are on the intimate subject and maybe embarrassing or make you uncomfortable. If this happens; you may refuse to answer if you choose. You may also stop the interview at any time. The interview may take about 40 minutes to complete.

#### Benefits

If you participate in this study, you will help us to strengthen the health systems in Kenya and other Low-income countries in Africa. As a result, countries, communities and individuals will benefit from improved quality of healthcare services. This field attachment is critical to strengthening the health systems as it will generate new knowledge in this area that will inform decision-makers to make research-based decisions.

#### Rewards

There is no reward for anyone who chooses to participate in the study.

#### Confidentiality

The interviews will be conducted in a private setting within the hospital. Your name will not be recorded on the questionnaire and the questionnaires will be kept in a safe place at the University.

**Contact Information**

If you have any questions, you may contact the following supervisors:

- 1. Ms. Lillian Miururi, Department of Health Systems Management  
Kenya Methodist University, Nairobi campus.

Phone number: 0724956049  
*Email: Lilian.Muiruri@kemu.ac.ke*

- 2. Prof. Wanja Tenambergen, Department of Health Systems Management Kenya  
Methodist University, Nairobi campus.

Phone number: 0726678020  
*Email: wanja.tenambergen@kemu.ac.ke*

**Participant’s Statement**

The above statement regarding my participation in the study is clear to me. I have been given a chance to ask questions, and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private and that I can leave the study at any time. I understand that I will not be victimized at my place of work whether I decide to leave the study or not, and my decision will not affect the way I am treated at my workplace.

Name of Participant ..... Date .....

Signature.....

**Investigator’s Statement**

I, the undersigned, have explained to the volunteer in a language s/he understands the procedures to be followed in the study and the risks and the benefits involved.

Name of Interviewer ..... Date .....

Interviewer Signature .....

## Appendix II: The Study Questionnaire

Hello, I am Qabale Nura, a student from Kenya Methodist University (KeMU), under the supervision of Prof. Wanja Tenambergen and Ms. Lilian Muiruri, I am conducting a study on factors influencing patient's retention in HIV test and treat chronic care in Nakuru County. Kindly help me by answering the questions below.

Questionnaire no ..... Client's unique number: \_\_\_\_\_ Clinic Name (Initials):  
 \_\_\_\_\_ Date of interview: \_\_\_\_\_

Please tick the appropriate answer for each question.

### Part A Socioeconomic Factors

#### 1. Gender

- i. Male [       ]
- ii. Female [       ]

#### 2. Age.....

#### 3. Marital status

- i. Married [       ]
- ii. Cohabiting [       ]
- iii. Widow/widower [       ]
- iv. Divorced [       ]
- v. Single

#### 4. Level of Education

- i. None Education
- ii. Primary
- iii. Secondary
- iv. Tertiary

#### 5. Occupation

- i. Employed
- ii. Unemployed
- iii. Casual

#### 6. Do you take your medicine?

- i. Yes
- ii. No

#### 7. Regarding how and when you take your medicine, please indicate your level of agreement to the following statements.

*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree.*

Please tick (✓) appropriately	1	2	3	4	5
1. I usually take my medicine regularly at a specific time every day					
2. I do not take my medicine at a specific time					
3. I do not take medicine regularly; I do forget to take them some days					

4. I usually take the prescribed dosage					
5. Sometimes, I share my medicine with others, and I also borrow from them once I ran of pills					

8. Do you know the dangers of missing your clinical appointments?

- Yes
- No

9. Please indicate your level of agreement with the following statements where:

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Tick in the appropriate box on your right.	1	2	3	4	5
1. Being bedridden and failing to provide for the family					
2. Viral multiplication and sickness					
3. I may get stigmatized due to the opportunistic infections					
4. I can transmit the disease to my children if I stop take my medicine					
5. I may die if I stop my medicine					

### Part B: Patient's Health Condition

10. What prompted you to be tested for HIV the first time?

- PITC
- VCT
- PMTCT
- Other

11. Were you treated for the sickness that brought you to the hospital? (If PITC)

- Yes
- No
- NA

12. What was your initial WHO stage?

- Stage 1
- Stage 2
- Stage 3
- Stage 4

13. Do you feel the importance of continuing with the treatment?

- Yes
- No

14. How do you prefer to be followed up and reminded to attend your scheduled clinic appointments once you return to care?

1. SMS	
2. Phone call	

3. Home visit/based care	
4. Treatment buddy	

**Part C Health Service Delivery**

15. Are the health care workers in this hospital friendly?

- Yes
- No

16. Please indicate your level of agreement to the following statements where:

*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. Health care workers were rude to me when I visited the clinic last					
2. Health care workers did not listen to my issues when I visited the clinic last					
3. Health care workers did not explain to me my results and clinic return dates					
4. Health care workers scold people in the presence of others					
5. Health care workers disclose my status to other people					

17. How do you describe the services you received during your last clinical visit at this facility?

18. How long did you wait to enrol in a care and treatment program after the initial diagnosis with HIV? (Days)

19. How much time did you spend at the hospital/clinic the last time you visited?

1. Less than 30 min	2. 30min -1 hour	3. 1-2 hours	4. 2-3 hours	5. More than 3 hours
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20. What is your view of the clinic flow?

1. Good
2. Fair
3. Poor

21. How long do you take to reach the hospital?

1. Less than 30 min	2. 30min -1 hour	3. 1-2 hours	4. 2-3 hours	5. More than 3 hours
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22. How much do you spend on transport to the clinic?

1. None	2. 50-100ksh	3. 100-200ksh	4. 200- 300ksh	5. More than 300ksh
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23. Do you have challenges in getting an off day to visit the facility for treatment?

- Yes
- No

24. Please state your level of agreement to the following statements where:  
*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. The hospital has adequate medical personnel					
2. I would love to see an attitude change in the hospital staff					
3. I feel there is no privacy, and I would like that improved					
4. I spend too much time in the hospital					
5. It would have been better if the services are offered after 5 pm, weekends and lunch hours (flexible hours)					
6. Healthcare workers are not always available to offer services					

### Part D: Psychological Support

25. Did you disclose your status to anyone? If no, please skip question 29/33 below and answer question number 31.

- Yes
- No

26. Whom did you share your HIV status?

- Spouse
- Sibling
- Parent
- a friend
- a colleague
- a child

27. What are the reasons for non-disclosure?

*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. I am afraid to be stigmatized and discriminated against by members of the society					
2. I am afraid to be divorced					
3. I am afraid of losing my job					
4. Disclosure may affect my family members negatively (stress)					

28. What is the status of your partner?

- Negative
- Positive
- Not tested

- NA

29. Do you use any drugs?

- Yes
- No

30. If yes, which drugs do you use? If none, please skip question 12 below

- Alcohol
- Marijuana
- Cocaine
- Other
- None

31. Please indicate your level of agreement to the following statements

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Please tick (✓) appropriately	1	2	3	4	5
1. I usually forget to take my medicine on time when under the influence of drugs					
2. I feel sickly when I take my ARVs with other drugs					
3. I forget about my clinical appointments and ran out of medicine					
4. I sometimes forget the dosage and take the wrong dosage when the under influence of other drugs					

32. Please indicate your level of agreement to the following statements concerning adherence support

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Please tick (✓) appropriately	1	2	3	4	5
1. Health care workers usually call me to inform me of my lab results or text me the results					
2. Health care workers counselled me on how and to take my medicine					
3. Health care workers offered me psychological support and counselling					
4. Health care workers usually remind me to attend my clinical appointments					
5. Health care workers usually follow up on me when I miss my clinical appointments					

33. How do you view your family support regarding your HIV status?

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Please tick (✓) appropriately	1	2	3	4	5
1. My family have accepted my status and fully support me					

2. I have the full support of my other families but not from my spouse					
3. I face stigma and discrimination from my family					

34. Please indicate your level of agreement to the following statements concerning social responsibilities

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. I sometimes miss clinics due to child care/ child schooling					
2. I have elderly/sickly parents who sometimes prevent me from attending the clinical appointments					
3. I am also looking after my younger siblings					
4. I am the only one working for the family and if I miss work, my family will not get food for that day					
5. I sometimes miss the clinics because of my studies					

35. Regarding ARVs storage, please indicate your level of agreement to the following statements

*1=Strongly Disagree, 2=Disagree, 3=Neural, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. I usually hide my medicine under the bed					
2. I usually hide my medicine under the seat					
3. I have a bag where I usually put my medicine in the bag					
4. I put my medicine in the cupboard					

36. Please indicate your level of agreement to the following statements regarding HIV illness where:

*1 =Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (√) appropriately	1	2	3	4	5
1. HIV is the worst illness I have ever come across					
2. HIV early diagnosis and treatment prevents immune system destruction					
3. HIV is a manageable health condition just like others					
4. ARVs helps me to live longer with the HIV					
5. There is stigma and discrimination in the society					

**Part E: Retention**

37. Did you keep your last clinical appointment?

- Yes
- No

38. Did you miss any clinical appointments in the past?

- Yes
- No

39. How many clinical appointments have you ever missed in the past?

40. Concerning your clinical appointments, to what extent do you agree with the following statements?

*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (✓) appropriately	1	2	3	4	5
1. I usually get busy at work and skips my clinical appointments					
2. I sometimes forget to go for my medicine					
3. I sometimes miss my clinical appointment due to lack of bus fare					
4. I don't like going for my clinical appointments due to the long waiting hours at the hospital					
5. I usually fear being seen by a person known to me					
6. Sometime when I travel, I miss out on my appointments					

41. What made you stop coming for your medicine? Please indicate your level of agreement to the following statements where:

*1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree*

Please tick (✓) appropriately	1	2	3	4	5
1. I stopped coming because I transferred to another facility					
2. I have travelled, and I have been borrowing medicine from another facility					
3. I stopped coming because I am busy at work					
4. I am tired of taking medicine					
5. I have a pill balance					
6. I am afraid of being scolded by facility staff for coming late					

**This part is to be filled at the facility by the health care providers**

42. What percentage of clients enrolled in the facility were started on ART (state the period)

43. What percentage was retained in the facility by the end of the 12month

44. Fill in the table below

Cohort outcomes (12month)	Number	Percentage
1.LTFU		
2.Death		

Thank you for your time

## Appendix III: KeMU Letter



### KENYA METHODIST UNIVERSITY

P. O. Box 267 Meru - 60200, Kenya  
Tel: 254-064-30301/31229/30367/31171

Fax: 254-64-30162  
Email: deanrd@kemu.ac.ke

#### DIRECTORATE OF POSTGRADUATE STUDIES

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April 26, 2021

Commission Secretary,  
National Commission for Science, Technology and Innovations,  
P.O. Box 30623-00100,  
**NAIROBI.**

Dear sir/ Madam,

**RE: QABALE NURA ABAGUDO (HSM-3-6357-3/2014)**

This is to confirm that the above named is a bona fide student of Kenya Methodist University, Department of Health Systems Management undertaking a Degree of Master of Health Systems Management. She is conducting research on 'Factors influencing patients retention in 'HIV test and Treat' chronic care in Nakuru County'.

We confirm that her Research proposal has been defended and approved by the University.

In this regard, we are requesting your office to issue a permit to enable her collect data for her research.

Any assistance accorded to her will be appreciated.

Thank you.



**Dr. John Muchiri, PHD.**  
Director Postgraduate Studies



**Appendix V: Map of Kenya**

