

**COVID- 19 CONTAINMENT POLICY MEASURES AND THEIR EFFECT ON  
ACCESS TO HIV SERVICES FOR PERSONS LIVING WITH HIV IN  
RUARAKA SUB-COUNTY**

**PURITY JEROP CHIRCHIR**

**REG NO: PHT-3-1845-1/2016**

**A Research Thesis Submitted in Partial Fulfilment of the Requirements for the  
Award of the Degree of Master of Science in Public Health of Kenya Methodist  
University**

**OCTOBER 2022**

**DECLARATION**

I declare that this research thesis is my original work and has not been presented in any other university.

Signature..... Date.....

**Purity Chirchir**

**PHT-3-1845-1/2016**

This thesis has been submitted for examination with our approval as University Supervisors.

**Dr. Makobu Kimani**

Department of Public Health, KeMU

Signature..... Date.....

**Dr. Consolata M'Mayi**

Department of Public Health, KeMU

Signature..... Date.....

## **COPYRIGHT**

**Purity Chirchir**

“All rights reserved, no part of this thesis maybe produced, stored in any retrieval system or transmitted in any form or by any means, electronically, mechanically, by photocopying or otherwise, without prior written of the author or Kenya Methodist University, on the behalf”

## **ACKNOWLEDGEMENT**

My sincere gratitude foremost goes to almighty God for his grace without which, this project and my entire education journey could not have been realized. Secondly, I would like to thank my supervisors Dr. Makobu Kimani and Dr. Consolata M'Mayi who have guided me through the development of this research work. I also appreciate the support of all my lecturers and their efforts in imparting knowledge to the best of their abilities and in the process opening up my mind to peruse research in this area of study. Am also indebted to my entire family and friends for their prayers, support and understanding during the year of study. To all I say thank you and may God bless you.

## **DEDICATION**

I dedicate this thesis to my family that has been steady fast in encouraging me to peruse greater academic heights and excellence.

## TABLE OF CONTENTS

<b>DECLARATION.....</b>	<b>ii</b>
<b>COPYRIGHT .....</b>	<b>iii</b>
<b>ACKNOWLEDGEMENT.....</b>	<b>iv</b>
<b>DEDICATION.....</b>	<b>v</b>
<b>LIST OF TABLES .....</b>	<b>ix</b>
<b>LIST OF FIGURES .....</b>	<b>x</b>
<b>LIST OF ABBREVIATIONS .....</b>	<b>xi</b>
<b>ABSTRACT.....</b>	<b>xii</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION.....</b>	<b>1</b>
1.1 Background to the Study.....	1
1.2 Research Problem .....	4
1.3 Overall Objective of the Study .....	6
1.4 Objectives of the Study.....	6
1.5 Research Questions.....	7
1.6 Justification of the Study .....	7
1.7 Delimitations of the Study .....	8
1.8 Limitations of the Study.....	8
1.9 Assumption of the Study.....	9
1.10 Operationalization of terms.....	9
<b>CHAPTER TWO .....</b>	<b>10</b>
<b>LITERATURE REVIEW .....</b>	<b>10</b>

2.1 Introduction.....	10
2.2 Coronavirus Disease 2019 (COVID-19).....	10
2.3 Disruption Effects of COVID-19 on Access to Health Services .....	11
2.4 Impact of COVID-19 Containment Policy Measures on Access to HIV Services.	13
2.5 Coping Strategies Used by People Living with HIV .....	16
2.6 Impact of COVID-19 Containment Policy Measures on Psychological Distress among PLHIV .....	18
2.7 Knowledge of COVID-19 among People Living with HIV .....	21
2.8 Conceptual Framework.....	24
<b>CHAPTER THREE .....</b>	<b>26</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>26</b>
3.1 Introduction.....	26
3.2 Study Design.....	26
3.2 Study Area .....	26
3.3 Target Population.....	27
3.4 Sample Size.....	28
3.5 Methods of Data Collection .....	30
3.6 Pretesting of Questionnaire.....	31
3.7 Methods of Data Analysis.....	33
3.8 Ethical considerations .....	34
<b>CHAPTER FOUR.....</b>	<b>35</b>
<b>DATA ANALYSIS AND INTERPRETATION.....</b>	<b>35</b>
4.0 Introduction.....	35

4.1 Response Rate .....	35
4.2 Socio-Demographic Data of the Respondents .....	36
4.3 Access to HIV Services .....	41
4.4 Coping Strategies .....	45
4.5 Psychological Distress .....	48
4.6 Knowledge on COVID-19 .....	56
<b>CHAPTER FIVE .....</b>	<b>62</b>
<b>SUMMARY, CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>62</b>
5.0 Introduction.....	62
5.1 Summary .....	62
5.2 Conclusions.....	65
5.3 Recommendations.....	66
5.4 Areas for Further Research .....	69
<b>REFERENCES.....</b>	<b>70</b>
<b>APPENDICES.....</b>	<b>83</b>
Appendix I: Letter of introduction .....	83
Appendix II: Approval of Research Proposal Letter .....	84
Appendix III: Research Authorization Letter .....	85
Appendix IV: NACOSTI Research Permit.....	86
Appendix V: Questionnaire for People Living with HIV .....	87
Appendix VI: Self-Reporting Questionnaire-20 (SRQ-20) .....	92



## LIST OF TABLES

Table 3.1 .....	27
<i>Target Population</i> .....	27
Table 3.2 .....	29
<i>Sample Size</i> .....	29
Table 3.3 .....	32
<i>Reliability test results</i> .....	32
Table 4.1 .....	36
<i>Questionnaire Response Rate</i> .....	36
Table 4.2 .....	37
<i>Socio-Demographic Characteristics</i> .....	37
Table 4.3 .....	43
<i>COVID-19 Containment Policy Measures and Access to HIV Services</i> .....	43
Table 4.4 .....	47
<i>Coping Strategies</i> .....	47
Table 4.5 .....	52
<i>Outcomes of COVID-19 Containment Policy Measures</i> .....	52
Table 4.6 .....	54
<i>Results of Multivariate Logistic Regression</i> .....	54
Table 4.7 .....	57
<i>Knowledge on Symptoms of COVID-19</i> .....	57
Table 4.8 .....	59
<i>Knowledge on COVID-19 Risk Factors</i> .....	59

## LIST OF FIGURES

Figure 2.1 .....	25
<i>COVID-19 containment policy measures, outcomes and their effect on access to HIV services by PLHIV.....</i>	<i>25</i>
Figure 4.1 .....	42
<i>Challenges Accessing HIV Services.....</i>	<i>42</i>
Figure 4.2 .....	46
<i>Interrupted supply of ART.....</i>	<i>46</i>
Figure 4.3 .....	49
<i>Psychological Distress.....</i>	<i>49</i>

## **LIST OF ABBREVIATIONS**

<b>AIDS</b>	Acquired Immunodeficiency Syndrome
<b>ART</b>	Antiretroviral Therapy
<b>CBO</b>	Community Based Organization
<b>CDC</b>	Centre for Disease Control and Prevention
<b>COVID-19</b>	Coronavirus Disease 2019
<b>HIV</b>	Human Immunodeficiency Virus
<b>JHU</b>	John Hopkins University
<b>MMD</b>	Multi-Month Dispensing
<b>MoH</b>	Ministry of Health
<b>NACOSTI</b>	National Commission for Science, Technology and Innovation ()
<b>NASCOP</b>	National AIDS/STD Control Programme
<b>PLHIV</b>	People living with HIV
<b>PrEP</b>	Pre-Exposure Prophylaxis
<b>SPSS</b>	Statistical Product and Service Solutions
<b>STIs</b>	Sexually Transmitted Infections
<b>UNAIDS</b>	Joint United Nations programme on HIV/AIDS
<b>WHO</b>	World Health Organization

## ABSTRACT

The spread of the novel coronavirus disease 2019 (COVID-19) globally led to the introduction of mitigation and containment responses designed to stem the heightened transmission of the virus. These measures hindered face-to-face provision of healthcare, which has traditionally formed the foundation for HIV treatment, testing, and prevention services. Research evidence demonstrates that the mitigation guidelines disproportionately affected people living with HIV. Although the containment policy guidelines might have been effective in limiting infections, they caused serious economic ramifications, which indirectly caused fear and anxiety among people living with HIV. Accordingly, the rationale of this study was to determine the effect of COVID-19 containment policy measures on access to HIV services for persons living with HIV. In so doing, the study explored containment policy measures that affected access to HIV services and the impact of these guidelines on psychological health of people living with HIV. Moreover, knowledge on the novel coronavirus as well as coping strategies used by People living with HIV to enable access to HIV services amidst COVID-19 were also explored to inform future responses to epidemics. The study adopted a cross-sectional research design. The study population for the study encompassed of 914 people living with HIV. The sample size constituted of 298 people living with HIV. Proportionate stratified, purposive, and systematic random sampling approaches were used to select respondents, while semi-structured questionnaire was used for data collection. The study used a self-reported questionnaire (SRQ-20) to screen for existence of psychological distress. The validity and reliability of the questionnaire was established through pretesting. Based on the overall results of the study, COVID-19 containment policy guidelines, such as closure of public transport ( $p=0.00$ ), cessation of movement ( $p=0.00$ ), stay at home requirement ( $p=0.00$ ), curfew ( $p=0.00$ ), public transportation limitation on passenger capacity ( $p=0.00$ ), quarantine ( $p=0.00$ ), and reduction of service hours in clinics ( $p=0.00$ ), negatively affected access to HIV. The prevalence of psychological distress among people living with HIV was 20.2% (95 % CI: 15.2%, 25.1%). The study concluded that the outcomes of COVID-19 containment policy measures contributed significantly to psychological distress; people living with HIV used various coping strategies to enable them access HIV services under the COVID-19 control measures; and people living with HIV had knowledge on the symptoms and high risk factors of COVID-19. The study recommends that enhanced investment in psychological counseling be made at every health centre to provide support mechanism to PLHIV during the COVID-19 outbreak period. The study recommends the Ministry of Health to adopt multi-month dispensing of ART, including mailing, home delivery, and integration of digital health into the delivery platforms of HIV services to ensure minimal interruption. The study recommends sensitization campaigns by the Government on COVID-19 given the evolving nature of the symptoms of the virus.

**Keywords:** *COVID- 19 containment policy measures, psychological distress, coping strategies, COVID-19 knowledge*

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background to the Study**

There have been coordinated and concerted efforts across the globe by various institutions, governments, communities, and health professional to stem the increasing cases of COVID-19 and alleviate the challenges it causes in society. However, cases and deaths associated with COVID-19 increased considerably after it was confirmed as a pandemic on March 2020 by the World Health Organization (WHO), with the first case initially reported on 8 December 2019 in Wuhan, China (Amimo et al., 2020). The epidemic has spread to over 185 territories and countries in which 45 are found in the African region where HIV is extremely prevalent (World Health Organization [WHO], 2020). COVID-19 is a worldwide epidemic that has triggered considerable disruptions to the world order since its outbreak in 2019. The number of COVID-19 reported cases exceeded 201 million by August 2021 with over 4.3 million deaths (John Hopkins University [JHU], 2021). While about 97–99 percent of people infected with COVID-19 recover, some cases require hospitalization, and people over 65 and those with some underlying medical conditions, for example, diabetes, asthma, cancer, and chronic lung disease, experience higher mortality (Sun et al., 2020).

Acquired Immunodeficiency Syndrome (AIDS) has been in Kenya for the last 36 years as it was first discovered in 1984 (Avert, 2021). Afterwards, there has been exponential growth in HIV infection rates. Going by the estimations on the percentage of adults infected, approximately 4.9 percent were already living with HIV by the year 2018 (National AIDS and STIs Control Programme [NASCOP], 2020). Despite evidence

showing that only a few cases of AIDS are formally reported in most developing countries, official statistics on HIV prevalence in Kenya show that 1.6 million individuals were infected (NASCOP, 2019).

Statistics provided by Kenya National Bureau of Statistics in 2016 show that the leading causes of mortality in Kenya were tuberculosis, heart disease, anaemia, HIV/AIDS, cancer, and malaria, contributing 3 percent, 4 percent, 5 percent, 8 percent, 8 percent, and 11 percent to death respectively (Kenya National Bureau of Statistics [KNBS], 2016). Moreover, the country has had a 55 percent decline in the number of deaths associated with AIDS as of 2010 where deaths stand at 25 000 down from 56 000. In the similar period, HIV infections stood at 46 000 down from 66 000 (United Nations programme on HIV/AIDS [UNAIDS], 2019).

COVID-19 pandemic caused extraordinary disruptions on both health-care provision and the lives of people worldwide after its advent. In fact, people living with HIV in China where the first case of the epidemic was first reported faced precarious barriers and difficulties to ideal care outcomes (Sun et al., 2020). The situation is replicated in other parts of the world, where COVID-19 has already aggravated the underlying barriers to access of HIV related services, such as community stigma and discrimination, user fees and lack of supportive work environments. Prior to the outbreak of this pandemic, People living with HIV (PLHIV) were previously affected by increased levels of stigma associated with HIV, suboptimal adherence, and psychological distress, such as anxiety and depression (Sun et al., 2020).

Gains made on provision of health services, particularly those of HIV prevention and treatment, face a risk of being reversed following the advent of COVID-19 in a diverse range of way. Direct caregivers and clinicians of patients infected by COVID-19 experienced greater morbidity compared to the other population (Friese et al., 2020). Reduction in transport services and logistic-related workplaces as COVID-19 containment measures interrupted the whole supply chain. Equally, reduction in transportation and cessation of movement directives limited access to routine HIV services, while on the other hand; the public were discouraged from visiting health facilities because of the underlying perceptions of the increased risk of contracting COVID-19. In addition, activities within the clinic setup, for example, antenatal care, closed as COVID-19 continued to spread.

Kenya provided its first preparedness and response framework on COVID-19 in February 2020 through the Ministry of Health by advising people to seek prompt assessment and management with signs of infection related to respiratory symptoms from health facilities (Aluga, 2020). Then Kenyan government, through executive order No. 2 of 2020, established the National Emergency Response Committee to provide input and support the executive in the mitigation of the challenges posed by the epidemic once it was reported in Kenya. The committee resolved and directed Kenyans to take extra precautionary measures, such as encouraging employers, where possible, to allow their staff to work from home.

A raft of measures were adopted by the Kenyan government, which sought to stem the further increase in the number of COVID-19 cases in the country beginning March 2020.

A public order notice was issued by the government, which directed for a 7 pm to 5 am curfew for all people apart from those listed as providers of essential services, as well as cessation of movement into and out of areas that had reported cases of COVID-19, such as Nairobi Metropolitan Area, Kiambu, Nakuru, Kajiado, Kisumu, Kilifi, and Mombasa Counties. Other measures included restrictions on gatherings, and social gatherings, and public transportation limitation on passenger capacity. Despite the critical role that these decrees were playing, concerns were raised regarding the social and psychological effects of COVID-19 guidelines on PLHIV. Against this background, the study sought to explore the COVID- 19 containment policy measures and their effect on access to HIV services for persons living with HIV in Ruaraka Sub-County.

## **1.2 Research Problem**

The first case of the pandemic was first detected in Kenya in March 2020 and thereafter, the country witnessed augmented cases, which meant that the government had to develop containment measures that had a devastating effect on numerous aspects of normal daily life, and in particular, provision of healthcare services to already existing medical conditions was greatly affected as the focus shifted to reducing fatalities associated with the epidemic. Countries across the globe, Kenya included, developed a wide range of measures, such as domestic travel restriction, imposition of curfew, suspension of international flights/travel, and closing of borders, among other key preventive steps, geared towards the fight against COVID-19 (Nyoni & Okumu, 2020). While adoption of these strict reduced the spread of COVID-19, delivery of healthcare services to individuals, such as PLHIV, was disrupted.



Most PLHIV seeking antiretroviral therapy (ART) services choose to register at public healthcare facilities that are far from their areas of residence perhaps on the account of both internal and external stigma (Amimo et al., 2020). Accordingly, strategies adopted by Kenya to stem the infection rates of COVID-19 culminated in reduced number of individuals accessing antiretroviral drugs. Moreover, PLHIV are hesitant to seek healthcare services for fear of contracting COVID-19 since individuals with HIV who have a compromised immune system are more susceptible to this illness. In this regard, it is important for PLHIV to possess knowledge on symptoms and factors associated with the high risk of the virus as this informs the preventive and precautionary measures to take, thus reducing information asymmetry and improving the overall health seeking behavior.

The pandemic overwhelmed the healthcare systems in different parts of the world. The impact of this pandemic on countries with lower-capacity health systems and those in the low-income bracket, such as those in Africa, South Asia, and the Caribbean, was catastrophic (Amimo et al., 2020). Cases and deaths from COVID-19 within continental Africa remained lower as compared to other regions under WHO. By August 6, 2021, Africa had 4.9 million cases and approximately 120,000 deaths. This compared favorably to 201 million cases and 4.3 million deaths across the globe; 34.9 million cases and 745,014 deaths in Europe; 35.6 million cases and 615,000 deaths in United States (WHO, 2021)

WHO had affirmed that AIDS related illness would cause twice the number of deaths in the Sub-Sahara Africa if healthcare provision were disrupted during the COVID-19 crisis

(UNAIDS, 2020b). In the worst-case scenario, a modeling group convened by joint United Nations programme on HIV/AIDS (UNAIDS) and WHO stated that a disruption on ART lasting for about six months could culminate in 500,000 more deaths (WHO & UNAIDS, 2020). Further, the consolidated advances that had been achieved in ensuring that there was no mother to child transmission were crawled back, suggesting that there was possibly a 104 percent increase in new HIV infections among children. The UN health agency advised that as governments put more emphasis on controlling the augmented cases of COVID-19, there was need for them to prevent interruptions in access to ARVs. In this context, this study sought to examine COVID-19 containment policy measures and their effect on access to HIV services for persons living with HIV in Ruaraka Sub-County.

### **1.3 Overall Objective of the Study**

This study sought to determine the effect of COVID-19 containment policy measures on access to HIV services for persons living with HIV in Ruaraka Sub-County.

### **1.4 Objectives of the Study**

- i. To determine the COVID-19 containment policy measures that affected access to HIV services for persons living with HIV in Ruaraka Sub-county.
- ii. To assess the coping strategies used by people living with HIV to enable access to HIV services under the new COVID-19 containment policy measures in Ruaraka Sub-county.
- iii. To assess the impact of COVID-19 containment policy measures on psychological distress among people living with HIV in Ruaraka Sub-county.

- iv. To determine COVID-19 knowledge among people living with HIV in Ruaraka Sub-county.

### **1.5 Research Questions**

- i. What COVID-19 containment policy measures affected access to HIV services for persons living with HIV in Ruaraka Sub-county?
- ii. What coping strategies are used by people living with HIV to enable access to HIV services under the new COVID-19 containment policy measures in Ruaraka Sub-county?
- iii. What is the impact of COVID-19 containment policy measures on psychological health of PLWHIV in Ruaraka Sub-county?
- iv. What is the level of COVID-19 knowledge among people living with HIV in Ruaraka Sub-county?

### **1.6 Justification of the Study**

In the Sub-Saharan Africa, Kenya included, there is inadequate statistics, or information on the effects of COVID-19 containment policy measures on access to HIV services among people living with HIV. More importantly, evidence linking COVID-19 containment measures on access to HIV services for PLHIV in Ruaraka Sub-county, is still emerging and hence, it is important to unravel the nature of this relationship. The findings from this study provide insights into the consequences of COVID-19 containment policy measures on various facets of healthcare, particularly access to HIV related services, which might be valuable to the Ministry of Health (MOH) and other international and local agencies involved in the fight of this epidemic.

Additionally, the study provides evidence to guide in the formulation of suitable interventions to improve access to HIV services by PLHIV, address the coping strategies of PLHIV in the context of this pandemic, and alleviate psychological health challenges during COVID-19 pandemic among PLHIV. These interventions are designed to reduce infections and lower the number of deaths and other social challenges caused by COVID-19. Moreover, the study may add knowledge to ongoing research efforts on COVID-19.

### **1.7 Delimitations of the Study**

The study was undertaken among people living with HIV in Ruaraka Sub-County of Nairobi County, and as such, the findings are applicable to this location and other places with comparable characteristics.

### **1.8 Limitations of the Study**

The research work was restricted to Ruaraka Sub-County. In addition, extant literature on the thematic area under study is scanty as the phenomenon is novel; hence, the researcher had difficulty putting together available information. The researcher sought to overcome this limitation by seeking to engage PLHIV to acquire first-hand understanding on the intersection between COVID-19 and PLHIV. Data collection was carried out in one of the facilities similar to where pretesting of the questionnaire was undertaken. Failure to eliminate Mathare North health facility from the actual research might have created bias. Nonetheless, respondents who participated in the pretesting of the questionnaire from this facility were excluded from the actual process of data collection.

## **1.9 Assumption of the Study**

The researcher held that respondents whose viewpoints were critical at finding answers to research questions raised by this research work were present and would agree to offer information on COVID-19 containment policy measures and their effect on access to HIV services for PLHIV.

## **1.10 Operationalization of terms**

**Utilization of HIV services** Use of HIV services by people living with HIV for the purpose of enhancing maintenance of wellbeing and health, or acquiring information regarding an individuals' health prognosis and status.

**Psychological distress** Refers to a situation where there are emotional challenges, such as depression and stress, related to demands and stressors, which have been occasioned by COVID-19 and are problematic to manage in day-to-day life.

**Coping strategies** Involves skills, such as positive appraisal and acceptance, which people living with HIV use to deal, minimize, and tolerate life events that are stressful, and as such, improve their psychological and physical wellbeing.

**Knowledge on COVID-19** Involves a variety of beliefs based on the information about various aspects of COVID-19 that people living with HIV hold over time. The beliefs relate to the causes of COVID-19, including its specific risk factors and symptoms.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Literature on COVID-19 containment policy measures and their effect on access to HIV services for persons living with HIV has been reviewed and summarized in this chapter. The chapter discusses literature on COVID-19 containment policy measures, which have widened access to HIV services, coping strategies used by PLHIV to enable access to HIV services amidst the pandemic, psychological distress among PLHIV, and knowledge of COVID-19 among PLHIV. The review of literature culminates in a conceptual framework presented at the end of this chapter.

#### **2.2 Coronavirus Disease 2019 (COVID-19)**

COVID-19 is a respiratory virus caused by a novel strain that causes sickness in humans and it is transmitted through air droplets, which are projected when a person coughs or sneezes (Khan et al., 2021). The disease spreads when humans come into contact with infected surfaces or hands and touch their mouth, nose, or eyes. WHO declared the virus to be a pandemic in March 2020 after the first case was initially discovered in Wuhan China on 8 December 2019 (Amimo et al., 2020). After the discovery of the first cases of the illness, it spread exponentially to different parts of the world. In Africa, the first cases of COVID-19 were reported in Egypt and Algeria, followed by Nigeria whereas in Kenya, the virus was reported on 12<sup>th</sup> of March 2020. The epidemiology of COVID-19 demonstrates that the epidemic has serious ramifications on the economy and health because of its transmission dynamics and the burden of infection (Chowdhury & Oommen, 2020).

Despite evidence suggesting that the fatalities and cases of COVID-19 were relatively low in Africa in comparison to other parts of the world, health systems in the continent were affected by the health shocks occasioned by the pandemic (Battle, 2020). As the household income reduced amidst the pandemic, the cost of healthcare increased coupled with the discouraged healthcare seeking because of the fear of being diagnosed with COVID-19 (Ahmed et al., 2020). The virus affected a large number of healthcare service providers given that a sizeable quota of the cases was reported among healthcare workers (Barranco & Ventura, 2020). Provision of healthcare to individuals affected with COVID-19 and those suffering from chronic and acute conditions, with limited access to healthcare facilities and services, are bottlenecks for the health systems in middle and low-income nations, which are in need of instant measures for health system strengthening across sectors (Zhai et al., 2020).

### **2.3 Disruption Effects of COVID-19 on Access to Health Services**

The COVID-19 pandemic has either completely or partially disrupted provision of health services. The survey results released by WHO/Pan American Health Organization in June 2020 showed that there was disruption of critical health-care services among the countries that were considered in the survey, particularly cardiovascular emergencies (31 percent), cancer treatment (42 percent), diabetes associated complications and diabetes treatment (49 percent), and hypertension treatment (53 percent) (WHO, 2020). Moreover, statistics point out that disruption of rehabilitation services has occurred in more than 63 percent of the countries despite the huge role they play among people who have initially suffered from COVID-19. There was limited access to outpatient services for non-communicable diseases in the Americas, more particularly those requiring rehabilitation

services as well as those in need of dental, hypertension, and diabetes care (Dean et al., 2020).

The adverse effects of COVID-19 on healthcare services required that meaningful, current, and reliable information, as well as peer support was readily available for individuals suffering from terminal illnesses, including those living with HIV (UNAIDS, 2020b). Other healthcare needs were to be taken into consideration even as the COVID-19 remained a challenge affecting numerous facets of human life globally. The COVID-19 epidemic disrupted the care continuum for various diseases, which required routine check-ups and therefore, affecting both the immediate and long-term outcomes of health. The most noticeable impact of the pandemic was in the group, which required acute intervention and care offered by providers trained for those illnesses that posed higher mortality risks. Accordingly, unrestricted and timely access to health services, such as for newborn care, essential obstetric, heart attack, and stroke resulted to augmented deaths. In addition, it was difficult to identify and connect patients who required immediate care in health facilities.

Robertson et al. (2020) indicate that COVID-19 caused maternal deaths as well as deaths for children who are under 5 years because health systems were disrupted or access to food decreased grossly. Based on a study carried out by Sochas et al. (2017) on Ebola virus outbreak, it was established that the epidemic led to a decline in access to postnatal care (13 percent), facility delivery (8 percent), family planning coverage (6 percent), and antenatal care coverage (22 percent). To this end, it was critical to understand the impact



of the COVID-19 mitigation and containment guidelines on access to HIV services among people living with HIV in developing countries, such as Kenya.

Kenya's healthcare system faces major deficits and challenges that have often affected provision of services. COVID-19 pandemic heightened and exacerbated existing problems in the country's healthcare system. The Kenyan health systems face a myriad of planning and coordination bottlenecks both at the national and the local level (Aluga, 2020). For instance, in spite there being no uniformity in the implementation of COVID-19 mitigation measures at the county/regional government level, the national government responded well by managing the pandemic through taskforces.

#### **2.4 Impact of COVID-19 Containment Policy Measures on Access to HIV Services**

People at risk of HIV and those living with HIV were confronted with the reality of the effects of COVID-19 epidemic as containment measures came in place to slow down the spread of the virus. Beginning the month of March 2020, there was a shift to COVID-19 units from primary care at the hospital level by the medical personnel, including reduction in hours by medical offices as well as closure of some agencies, such as community-based organizations (CBOs), which directly provide HIV services.

Jiang et al. (2020) noted that despite the concerted efforts by global bodies, in partnership with community and government partners to promote provision of HIV services for PLHIV even in the face of this epidemic, the novel COVID-19 posed many challenges and barriers to the HIV care continuum. The advent of the COVID-19 pandemic meant that the much-needed well-timed care for HIV was delayed since most hospitals were responding to patients suffering from this virus. In this context, individuals newly

infected with the HIV virus had difficulty initiating antiretroviral therapy (ART) in health facilities. Further, available resources were almost entirely allocated to the control of COVID-19 by most of public hospitals and other facilities, implying that there were limited funds to promote continued HIV care. In addition, ART continuation was affected because of COVID-19. Visit to hospitals diminished because of enactment of COVID-19 containment policy measures, like movement controls and major town lockdowns, which were considered as epicenters of the epidemic.

A study by Pinto and Park (2020) sought to establish how COVID-19 pandemic affected the HIV prevention and continuum of care, by specifically considering primary care, pre-exposure prophylaxis (PrEP), and testing. The study revealed that physical distancing orders affected the already existing structure of operation where frontline workers used the face-to-face meetings to link individuals to HIV services. Linkage of clients in need of HIV services by frontline providers was affected negatively by physical distancing between clients and providers. The structural and medical (such as lack of insurance and testing) vulnerabilities that have in the past weakened system-and individual-level prevention of HIV became bare at the onset of the COVID-19 pandemic.

In a study to establish the implication of COVID-19 pandemic on control of HIV, tuberculosis, and malaria, Amimo et al. (2020) indicated that COVID-19 caused enormous catastrophes in continental Africa since the region had vulnerable economic and health systems, combined with high preference of malaria, TB, and HIV. This is because of the vulnerable economic and health systems, including the high burden of malaria, tuberculosis, and HIV. Given that majority of people in Africa are unemployed,

underemployed, or work in the informal sector, the measures designed to stop the further infection of COVID-19 likely caused a myriad of challenges (International Labour Organization [ILO], 2020). Accessibility to a wide range of vital services due to limited and interrupted transport systems to healthcare facilities, as well as the diminished capability to generate adequate income to cover medical expenses is some of the challenges that the populations in Africa face (Amimo et al., 2020). Accordingly, if interventions pursued by countries failed to consider both epidemiological and economic aspects, the expectation was that these policy guidelines created a wide range of challenges among groups that were vulnerable in society to access important services as well as prophylactic and ARV drugs PLHIV. This increased the likelihood of individuals using substandard prescriptions, which caused inefficiency in drugs and exacerbated the already existing health inequalities in continental Africa.

Nyoni and Okumu (2020) carried out a study in Sub-Saharan Africa to explore compliant strategies that support treatment adherence among people living with HIV. The results from the study showed that shelter-in-place and social distancing protocols that were important in containing or preventing the spread of COVID-19 acted as barriers to ART treatments, and as such, impeded treatment adherence by PLHIV. Nonetheless, the study found out that treatment supporters, such as partners, relatives, or close friends, nominated and chose by PLWHs had similar effects on adherence to ART outcomes to those that healthcare providers select. In this context, care and support for ART adherence by PLHIV at the community level were improved by using easy means that were also compliant within the COVID-19 response framework. Cash transfers and

digital health interventions were other strategies recommended to support treatment adherence by PLHIV.

## **2.5 Coping Strategies Used by People Living with HIV**

It is imperative for PLHIV to develop coping tactics since this helps to reduce psychological suffering, arising from a myriad of challenges associated with the condition. Coping strategies entail behaviors and thoughts that individuals utilize as an approach to organize external and internal demands of given stressful factors or events (Silva et al., 2013). PLHIV and those affected directly by the disease experience higher level of psychological distress as opposed to those who are not infected by the virus. HIV stressors like discrimination and stigma, abandonment and sexual abuse, make people living with HIV susceptible to psychological distress, which manifests through use of recreational drugs, risky sexual practices, and poor treatment adherence. Systemic challenges to HIV care, like stigma and discrimination, and the disruptions caused by COVID-19 pandemic to the healthcare system have continued to exacerbate psychological distress among PLHIV.

A study by Silva et al. (2018) explored coping strategies utilized by people living with HIV by analyzing them based on lifestyle, clinical, and socio-demographic variables. According to the findings of the study, there was a repeated mention of emotion-focused coping strategies by the respondents. Patients who stayed with family members, had a partner and regularly got support in terms of their treatment scored highly in coping factors, social support and withdrawal.

Studies have highlighted the coping strategies used by people living with HIV to enable access to HIV services under the COVID-19 containment policy measures. Theresa et al. (2021) observed that as governments across the world instituted a wide range of guidelines, such as travel restrictions and health facility closures, to reduce the rate at which the COVID-19 virus was spreading, there was disruption on access to ARV therapy for PLHIV and thus, specific interventions were put in place to remedy the impact of these containment policy measures. Based on the programmatic information, countries like Nigeria, Nepal, and Indonesia relied on private sector courier services and network of community health worker for the delivery of ARV. The model on decentralized home delivery was successful because of service innovations that were made possible through stakeholders' leadership in the creation of home delivery mechanisms.

Sun et al. (2021) explored the efforts used by stakeholders to mitigate against interruptions in antiretroviral therapy PLHIV during the COVID-19 pandemic in China. Based on the qualitative data collected from drug vendors, HIV nurses and doctors, Centre for Disease Control and Prevention (CDC) staff working under the HIV care, CBO workers, and PLHIV, CBOs enabled regular access to ART by PLHIV through offering connections to alternative ART sources, privacy protection measures, ART delivery via mail, and refilling ART at local hospitals or CDC clinics. Similarly, thematic analysis showed that drug vendors contributed to ART maintenance by selling out-of-pocket ART.

## **2.6 Impact of COVID-19 Containment Policy Measures on Psychological Distress among PLHIV**

The spread of the COVID-19 became a universal epidemic and affected the normal operations of the world order, causing one of the major crises within the public health context as it engineered substantial aftershocks on both the economic and social spectrums. The epidemic was estimated to have caused disproportionate impact to different segments of society. The uncertain situation created by the pandemic created intensified levels of anxiety and stress, which as a whole had a psychological impact on the mental well-being of individuals, in addition to the common direct risk to the physical health (UNAIDS, 2020b). Marginalization and discrimination faced by PLHIV means that they were more susceptible to being subjected to mental health difficulties. Closure of opportunities in the non-formal education, restricted movement, and national lockdowns culminating in deprivation of social interactions with educators and peers, intensified anxiety, depression, and loneliness among PLHIV (Jiang et al., 2020).

Before the outbreak of COVID-19, PLHIV across the globe had previously faced problems, such as suboptimal adherence, stigma because of HIV, and psychological distress in the form of anxiety and depression (Mao et al., 2019). A study undertaken in China by Sun et al. (2020) to determine challenges to psychological health and HIV care in the context of COVID-19 among PLHIV found out that heightened stigma within the context of HIV, risk of someone's HIV status being revealed, disruption of HIV care and medication uptake, exacerbated mental health among PLWH during the outbreak of COVID-19. In the study, it was further noted that insomnia, anxiety symptoms, and depression were the most reported psychological challenges affecting those already living

with HIV. PLHIV stated to have been worried about their future clinical care because of disruption, as well as the present disruption in uptake of medication.

Psychosocial issues have the potential to create a syndemic condition worsening adversative outcomes of health for PLHIV as well as failure to attain suppression of viral load, HIV transmission risk, and suboptimal medication adherence. Shiau et al. (2020) sought to understand the burden of COVID-19 in PLHIV from a syndemic perspective. PLHIV face a myriad of morbidities and in most of the times, they are likely to face more physical health issues resulting from COVID-19. Underlying social burdens coupled with morbidities that exist among PLHIV predispose them to COVID-19 and this most likely to precipitates outcomes that are negative to this population. These burdens have the potential to affect the social, emotional, and physical well-being of PLHIV, and as such, impede effective healthcare access and delivery of treatment related to HIV.

Hargreaves et al. (2020) stated that the formulation of a response framework towards COVID-19 ought to have incorporated people with comorbidities, those who are older and those affected by poverty and other forms of social inequalities. Building cohesion in community, including trust and social capital catalyzes the effect of the messages related to health, and this can be promoted through support given to local leadership. These dynamics helped to control HIV among people involved in sex work in Thailand and India, as well as gay men in the US. Social distancing and lockdown guidelines disrupted economic activities and therefore, worsened the food security situation, which is a critical bottleneck to ART adherence.

Guo et al. (2020) examined healthcare needs and status among Chinese PLHIV amidst the outbreak of COVID-19 as an approach of designing responses from communities and governments. The study targeted PLHIV aged 18 years who had been put on ART to gather data on prevention of COVID-19, psychological support needs, and HIV-related health services. The results showed that most respondents obtained information from villages and communities on COVID-19 prevention. Moreover, it was revealed that there were concerns with the shortage of personal protective equipment and the HIV-specific protective measures. Implementation of policy guidelines, specifically the travel and traffic restrictions, meant that some PLHIV faced stock-outs because they failed to carry enough antiretroviral medicines (ARVs). The findings further indicated that there were individuals who required ARV refill whereas others acknowledged that they had challenges accessing ARV because of lockdowns meant to lessen the spread of COVID-19 epidemic.

Abiodun et al. (2018) posited that PLHIV have a heightened probability of mental health burden, other sexually transmitted infections (STIs), and illicit drug use, which are exacerbated by high levels of psychological burdens, particularly among populations that have been marginalized, as well as poor and underserved, racial and ethnic minorities, and sexual and gender minorities. Burdens like hopelessness, stigma, loneliness, and medical mistrust, constitute some of the factors, which have contributed further in the virus spread (Wang et al., 2017). After the advent of COVID-19, PLHIV experienced heightened levels of insomnia, anxiety, and stress (Shiau et al., 2020). In this context, it was critical to understand the nature of manifestation of these psychological shortcomings among PLHIV amid the COVID-19 epidemic.



Perazzo et al. (2020) explored the association between social capital and levels of depression among PLHIV to establish if depression affected their beliefs about available resources and social connectedness. The study established that the increase in depression was associated with a decrease in self-reported social capital, suggesting that PLHIV who suffer from depression may feel less confident on their ability to acquire resources that they need. In other words, social connectedness of PLHIV diminishes as depression sets in, and this has a negative influence resource access by thus cadre of people.

Han et al. (2018) pointed out that community health workers' interventions are a necessary approach to enhance and support the health of PLHIV. HIV care requires crucial dimensions that can contribute to the disease's prognosis and amongst these, psychological factors are significant within the scope of care. Among the psychosocial factors that ought to be addressed through the means of interventions among the PLHIV include reduction of stigma or depression related to HIV, self-efficacy, enhancement of life quality, and social support. A study by Santos et al. (2020) on HIV prevention and treatment, economic, and mental health impacts of COVID-19 among MSM and cisgender gay men showed that participants were affected by severe psychological distress, wherein anxiety and depression were more prevalent.

### **2.7 Knowledge of COVID-19 among People Living with HIV**

According to the guidelines on case management of COVID-19 provided by the Kenyan government through the Ministry of Health, up to 30% of patients who have severe COVID-19 have existing poorly controlled comorbidities, the most common being chronic lung disease, asthma, hypertension, HIV, diabetes mellitus, and cardiovascular disease (Ministry of Health [MoH], 2020). People suffering from diabetes were more

prone to COVID-19 if they were suffering from other underlying conditions, like heart failure, chronic obstructive pulmonary disease, kidney disease, and heart failure.

Kenya's Ministry of Health provided interim guidelines on management of the epidemic in the country (MoH, 2020). The ministry provided such guidelines with the aim of controlling the spread of the coronavirus, including mitigation and prevention measures. According to MoH, the clinical syndromes associated with COVID-19 were classified as critical cases, severe pneumonia, mild pneumonia, and uncomplicated illness. Under critical cases, patients experienced organ failure requiring ICU care and are prone to respiratory failure necessitating mechanical ventilations. Adults or adolescents with severe pneumonia experienced symptoms such as severe respiratory distress, suspected respiratory infection, or fever.

For children, clinical symptoms of severe pneumonia included convulsions, unconsciousness or lethargy, inability to breastfeed or drink, severe respiratory disease, and difficulty in breathing (MoH, 2020). Similarly, children with mild pneumonia experienced fast breathing, difficulty breathing, and cough, or a combination of all these symptoms. Patients with mild pneumonia did not show signs of severe pneumonia. Clinical symptoms of uncomplicated illness included muscle pain, headache, malaise, nasal congestion, sore throat, cough, and fever.

Karijo et al. (2021) carried out a study in Kenya that sought to explore youths' practices, attitudes, and knowledge of the COVID-19. The study used a cross-sectional descriptive research to collect data from 2156 youth across Kenya's 47 counties. The outcome of the study espoused that the knowledge on symptoms of COVID-19 was high, especially

among females than males. Further, the findings showed that more youth had adopted behaviors that were critical towards slowing down the spread of the virus. Nonetheless, the youth indicated lower levels of being susceptible of being infected.

A study by Williamson et al. (2020) found out that gender and age were the commonly known factors that predisposed people to COVID-19. In the study, it was revealed that people above the age of 60 accounted for almost all (90 percent) the deaths that were associated with the pandemic in the United Kingdom, where there were more males (60 percent) than females affected by COVID-19. Moreover, pre-existing medical conditions have been identified as possible factors that predispose individuals to greater COVID-19 risk. For instance, in a study by the Chinese Center for Disease Control and Prevention that involved 44,672 people with 1,023 deaths found out that cancers, respiratory disease, diabetes, hypertension, and cardiovascular disease were predictors of greater risk of death (Deng et al., 2020).

Chitangala et al. (2020) carried out a study in Lusaka Zambia to investigate the knowledge and fears that people living with HIV possess on COVID-19. The study's results demonstrated that social media constituted the core source of information that respondents were depending on whereas others relied on television news and government announcements. Further, it was revealed that people were likely to be susceptible to the virus because of the underlying stigmatization fears and worries on how to access medication if lockdowns were to be imposed. Similarly, pre-existing illnesses and presence of HIV virus causing low immunity were other factors that predisposed people to greater risk of COVID-19.

Williamson et al. (2020) examined associates of COVID-19-related deaths in Britain. The study found out that severe asthma, diabetes, medical conditions, greater age and deprivation, and being male were some of the aspects that were linked to COVID-19 associated deaths. Moreover, obesity for BMI above 40 was associated with increasing risk of COVID-19 death. Similarly, a study by Liu et al. (2020) utilized logistic regression as a basis of estimating predictors of COVID-19 and established that family members, females, old people, and children were more susceptible to COVID-19 infection, whereas there was lower contagiousness for index cases that were under incubation period.

In India, Roy et al. (2020) utilized a cross-sectional study to explore perceived mental healthcare need, knowledge, anxiety, and attitude in India's population amidst the COVID-19 pandemic. The results of the study showed that the educated population in India had moderate awareness about the symptoms and transmission of the novel coronavirus. In addition, the results of the study revealed that the public was adequately aware about the preventive measures against the infection by the virus. A positive attitude was exhibited by the public towards avoiding travel and party, maintaining hygiene, and social distancing.

## **2.8 Conceptual Framework**

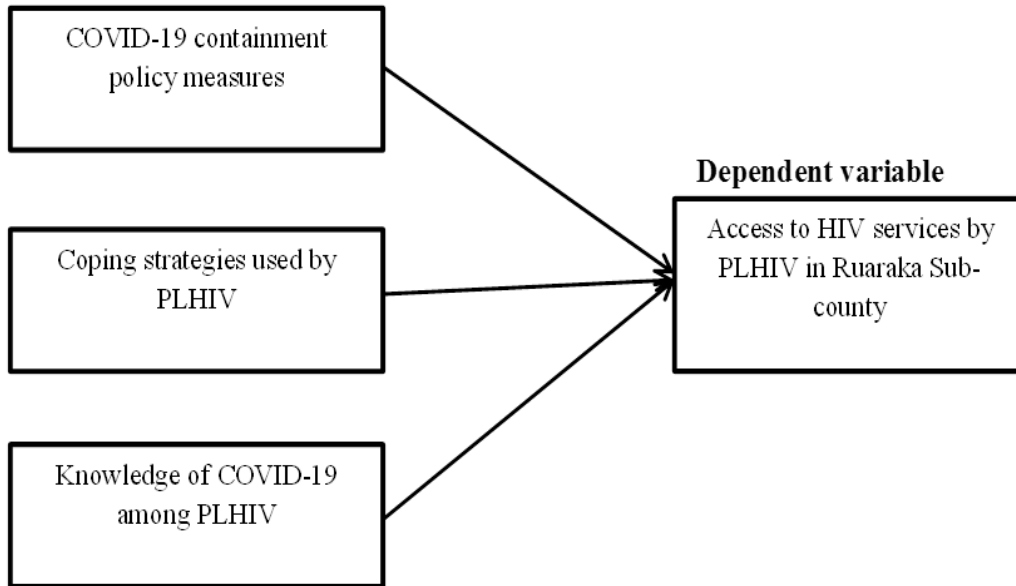
The conceptual framework is an illustration of how COVID-19 containment policy measures created disruptions, which subsequently affected access to HIV services and psychological health of people living with HIV.

**Figure 2.1**

***COVID-19 containment policy measures, outcomes and their effect on access to HIV services by PLHIV***

**Independent variable**

COVID-19 containment policy measures



At the advent of COVID-19, the Government instituted a raft of measures to contain the spread of the virus. While all the policy guidelines were intended to slow the ever-increasing cases of COVID-19, a number of them had far-reaching consequences on the health and economy. Consequently, some of these measures had significant negative implications to the general population.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter addresses the research and methodological approaches adopted by the study. It starts by looking at the study design, target population, and sampling. The chapter further presents data collection instruments, data collection procedures and methods of data collection.

#### **3.2 Study Design**

The study design utilized in this research work is the cross-sectional research design. It is both descriptive and analytical. The design was thought to be suitable in this study because it encompasses data collection at a defined period of time from one or more populations with the aim of describing the existing attributes of a sample. It was expected that this design would provide meaningful insights in establishing how COVID- 19 containment policy measures affected access to HIV services for persons living with HIV in Ruaraka Sub-County.

#### **3.2 Study Area**

The study area was confined to Ruaraka Sub-County within Nairobi County, Kenya, focusing on PLHIV receiving HIV treatment services from Comprehensive Care Centers (CCC) in public health facilities, which comprise of both health centers and dispensaries. There are 7 Comprehensive Care Centers in Ruaraka Sub-County. The choice of Ruaraka Sub-County public health facilities was appropriate as they participate in the reporting, continuous data update and sharing with the Ministry of Health through the National AIDS/STD Control Programme (NAS COP). Moreover, anti-viral therapy, laboratory

services, and drugs are free and provided on a regular basis in all public health facilities. Ruaraka Sub-County is one of the locations under the Nairobi Metropolitan Area where cessation of movement into and out was enforced as a mitigation strategy to address the increased cases of COVID-19. The Sub-County has some of the largest public health facilities offering HIV treatment services, hence it was selected as it would be representative of the population of PLHIV.

### **3.3 Target Population**

The target population constituted of people living with HIV in Ruaraka Sub-County, Nairobi, Kenya. The study population comprised of people living with HIV who had been put on antiretroviral therapy in public health centers in Ruaraka Sub-County and were 18 years of age or above. The number of PLHIV registered under public health centers in Ruaraka Sub-County was 914 based on data from the District Health Information System (DHIS) at Mathare North health facility. Update on data entry, sharing and reporting is done at Mathare North health facility for all the centers within Ruaraka Sub-County before being recorded in the DHIS, with NASCOP being the final institution providing national statistics on HIV. Accordingly, the target population for the study was 914. Table 3.1 below summarizes the target population of the study.

**Table 3.1**

***Target Population***

<b>HIV Comprehensive Care Centres</b>	<b>Target Population</b>
Mathare North Health Centre	154
Babadogo Health Centre	203
Korogocho Health Centre	146
National Youth Service (NYS) Headquarter Dispensary	106
General Service Unit (GSU) Headquarter Dispensary	138
Ruaraka Clinic	58
CID Headquarter Dispensary	109
<b>Total</b>	<b>914</b>

### **3.3.1 Inclusion Criteria**

People living with HIV, were aged 18 years or above and were attending HIV Comprehensive Care Centres for at least six months in Ruaraka Sub-County were included as respondents.

### **3.3.2 Exclusion Criteria**

People living with HIV who were too ill to participate, including those with mental challenges and were incapable of making personal decisions did not take part in the research work. These respondents were not able to provide responses to various questions that were raised by data collectors because of severity of comorbidities or illnesses.

### **3.4 Sample Size**

The sample of the study was drawn from 914 people living with HIV who are registered under the public health centers in Ruaraka Sub-County. Data from the District Health Information System (DHIS) at Mathare North health facility shows that 914 people living with HIV are receiving HIV services in public health centers in Ruaraka Sub-County. The study applied Fischer's formula in determining the number of people living with HIV who were to be respondents based on the 7 comprehensive treatment centers in Ruaraka Sub-County. Scholars have recommended the use of Fischer et al. (1996) sample determination formula for proportions in the population (Sekaran, 2006).

$$n = \frac{z^2 pq}{e^2}$$

Where: n= sample size, p=the proportion in the target population estimated to have characteristics being measured (placed at 50 percent=0.5 for the study), q = (1-p) i.e. the



proportion in the target population estimated not to have characteristics being measured (1-0.5), e = margin of error (placed at 5 percent), z = 95 percent certain= 1.96.

Based on the above Fischer's formula, the sample size below is obtained;

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

Given that the total target population is less than 10,000, the researcher further applied the finite correction formulae to determine the sample size as shown below:

$$n = \frac{n_0}{1 + \frac{(n_0 - 1)}{N}}$$

Where; n = minimum sample size after the adjustment, n<sub>0</sub> = minimum sample size, N = total population, i.e. 914.

$$= \frac{384}{1 + \frac{(384 - 1)}{914}} = 271$$

A non-response rate of 10 percent was added to make the total sample size of 298. The sample size was spread proportionately across the health facilities as shown in Table 3.2.

**Table 3.2**

*Sample Size*

<b>HIV Comprehensive Care Centres</b>	<b>Target Population</b>	<b>Proportion</b>	<b>Sample Size</b>
Mathare North Health Centre	154	17	50
Babadogo Health Centre	203	22	66
Korogocho Health Centre	146	16	48
National Youth Service (NYS) Headquarter Dispensary	106	12	35
General Service Unit (GSU) Headquarter Dispensary	138	15	45
Ruaraka Clinic	58	6	19
CID Headquarter Dispensary	109	12	36
<b>Total</b>	<b>914</b>	<b>100</b>	<b>298</b>

### **3.4.1 Sampling Procedure**

Sampling methods adopted to select PLHIV as respondents to the study included purposive, proportionate stratified and systematic sampling. Ruaraka Sub-County public health facilities were purposely selected since people living with HIV were enrolled in such centers for comprehensive HIV treatment. Proportionate stratified sampling method was utilized in the recruitment of respondents based on the size of the population where the researcher selected a predetermined number of PLHIV in each of the health facilities identified in table 3.2. Systematic sampling was undertaken as an approach to the selection of PLHIV in each of the health facilities. The first respondent was selected by lottery method from a sampling frame of people living with HIV per health facility while subsequent selection of study respondents was done using systematic sampling in every sampling fraction ( $k=3$ ).

### **3.5 Methods of Data Collection**

The process of data collection was aided by the use of a questionnaire. The rationale of using a questionnaire in this type of study was because it allowed the researcher to administer it within a shorter time and made it possible for respondents to provide responses based on the thematic areas of a research work. To enhance coverage of information, the design of the questionnaire consisted of open and closed ended type of questions. To ensure confidentiality and privacy of the respondents, clinical nurses and community health workers based at the ART clinics in the facilities facilitated data collection. Telephone-based interviews and physical methods of data collection were leveraged where the latter involved respondents filling the questionnaire at the ART

clinics whereas the former was utilized to collect data from the respondents who were unavailable physically.

Psychological distress was evaluated by use of interviewer-based self-reported questionnaire (SRQ-20), which is annexed to this study under appendix III. SRQ is a tool developed and recommended by WHO in screening for existence of psychiatric disturbances. Questions in the SRQ are binary in nature wherein a respondent can choose either Yes or No. A No response receives a zero point whereas a Yes answer scores one point with the total score being 20. A score equal to or greater than 11 implies that a person suffers from psychological distress. The SRQ has previously been used by Basha et al. (2019) to assess psychological distress among PLHIV in Ethiopia.

### **3.6 Pretesting of Questionnaire**

To pretest the questionnaire in terms of its language, wording, and content, 15 respondents from Mathare North Health Centre filled the questionnaire before commencement of the actual process of data collection. Scholars, such as Isaac and Michael (1995), have recommended samples of between 10 and 30 for pilot or exploratory studies undertaken under limited financial resources, thus a sample of 15 respondents was adequate. The respondents who participated in the pretesting of the questionnaire were excluded from the actual process of data collection, hence data from them was not incorporated in the subsequent data analysis.

Pretesting provided opportunities for the modification of the questionnaire by carefully reviewing all questions to ensure that they were free of mistakes as well as removing those that were ambiguous. Pretesting contributed to reliability and validity of the

questionnaire used for data collection by ensuring that it provide information required to answer research questions.

### 3.6.1 Reliability of the Questionnaire

Reliability of the instruments was determined by means of pre-testing to establish that the manner in which respondents answered questions was not influenced by the way they were ordered, including if the respondents were comprehending the questions in a correct manner. Moreover, pretesting ensured measurement errors were significantly reduced, and contributed to the identification of areas that were problematic within the questionnaire. Items on the questionnaire were corrected appropriately based on pretesting results. The reliability of the questionnaire used in this study was determined by use of the Cronbach’s alpha. For this study, Cronbach’s alpha coefficient value of 0.7 and above denoted presence of internal reliability.

**Table 3.3**

*Reliability test results*

<b>Item</b>	<b>Respondents</b>	<b>Alpha</b>	<b>Comment</b>
COVID-19 containment policy measures	15	0.823	Reliable
Coping strategies	15	0.740	Reliable
Psychological distress	15	0.718	Reliable
COVID-19 knowledge	15	0.759	Reliable

According to the reliability test results presented in the table above, Cronbach’s alpha coefficients for COVID-19 containment policy measures (0.823), coping strategies (0.740), psychological distress (0.718), and COVID-19 knowledge (0.759) were above the recommended threshold of 0.7 and above and thus, the questionnaire used in this study.

### **3.6.2 Validity of the Questionnaire**

Validity of the questionnaire was enhanced by using an appropriate study design. The questionnaire was checked for face validity to ensure that it captured the topic under study effectively. In addition, supervisors' expert review and judgment enhanced validity, which ensured the questionnaire did not contain leading, confusing, or double questions. The questionnaire was further subjected to construct validity as an approach of ensuring that this research tool tested and measured accurately the interplay between COVID-19 containment policy measures and access to HIV services for people living with HIV. Each of the constructs of the study, such as COVID-19 containment policy measures and coping strategies, were operationalized into characteristics that were measurable.

### **3.7 Methods of Data Analysis**

Data collected from PLHIV underwent cleaning by modifying and removing duplicate, irrelevant, incorrect, or incomplete data as a standard practice of guaranteeing that it was free from anomalies and analyzed using the Statistical Package for Social Sciences (SPSS v.23). Data analysis was done in line with the objectives where quantitative data was described using both descriptive and inferential statistics. The population was described using descriptive statistics like means, frequencies, and percentage, while binary logistic regression as a type of inferential statistics was used for multivariate analysis to identify factors associated with psychological distress among PLHIV. The strength of the association was presented by odds ratio with a 95 percent confidence interval. The chi-square test was used in the comparison of the categorical variables.

### **3.8 Ethical considerations**

The researcher obtained approval from the Kenya Methodist University Scientific and Ethical Review Committee (SERC) and National Commission for Science, Technology and Innovation (NACOSTI) before proceeding to the field for data collection. To gain consent, an explanation was given to respondents on the purpose and importance of this research work by the clinical nurses and community health workers based at the facility who were collecting data from the respondents through physical filling of the questionnaire and telephone-based interviews. To get consent, respondents had to agree or decline to participate in the study voluntarily.

Validity and reliability of the telephone-based interviews was achieved through careful design of the research instrument to ensure there was clarity of questions to minimize cognitive burden for respondents, many of whom were participating in this type of research for the first time. Responses gathered from respondents remained confidential, as questionnaires had study codes instead of recording identifying information.

## **CHAPTER FOUR**

### **DATA ANALYSIS AND INTERPRETATION**

#### **4.0 Introduction**

This chapter presents data analysis and interpretation of results on COVID-19 containment policy measures and their effect on access to HIV services for people living with HIV. Presentation of statistical summaries and interpretation of the corresponding statistical inferences, arising from the analysis, is undertaken systematically in light of each of the objectives. Presentation of the findings has been aided by use of tables and figures.

#### **4.1 Response Rate**

The sample size of this study consisted of 298 people living with HIV in Ruaraka Sub-County, Nairobi County, specifically those receiving HIV treatment services from Comprehensive Care Centers (CCC) in public health facilities. There are 7 Comprehensive Care Centres in this Sub-County and they include Mathare North Health Centre, Babadogo Health Centre, Korogocho Health Centre, National Youth Service (NYS) Headquarter Dispensary, Ruaraka Clinic, and CID Headquarter Dispensary.

The number of questionnaires that were filled by the respondents with the help of community health workers through telephone-based interviews and returned to the researcher was 243 out of a possible sample size of 298. Consequently, this implies that the response rate was 81.5 percent whereas the non-response rate was 18.5 percent (n=55) (see table 4.1). A few respondents refused to participate in the study stating that they were not aware of health research involving PLHIV in the context of COVID-19. Further, community health workers who aided data collection observed that some

respondents did not wish to take part in the study because of poor timing since they were attending to their professional duties. However, the researcher through community health workers made follow-ups and reminders to the respondents and thus, facilitating a good response rate.

**Table 4.1**

***Questionnaire Response Rate***

<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Response	243	81.5
Non-Response	55	18.5
<b>Total</b>	<b>298</b>	<b>100</b>

**4.2 Socio-Demographic Data of the Respondents**

The socio-demographic characteristics, which were of interest to the researcher included marital status, gender, age, religion, number of children, living condition, educational status, occupation, and income. The first socio-demographic data collected from the respondents was age. Based on the results of the study, majority (42.4 percent, n=103) of the respondents were aged 35-44 years, above a third (39.1 percent, n=95) 25-34 years while lower than two-tenths (16.9 percent, n=41) were above 45 years of age. Less than a tenth (1.6 percent, n=4) were aged below 18 years. This finding is consistent with previous reports on national HIV incidence among people living with HIV in Kenya. For instance, a 2020 preliminary report by the Kenya Population-based HIV Impact Assessment (KENPHIA) highlighting the 2018 national HIV statistics stated that HIV was more prevalent among individuals aged 15-49 years.



**Table 4.2***Socio-Demographic Characteristics*

<b>Socio-Demographic Characteristics n=243</b>		<b>Frequency (f)</b>	<b>Percent (%)</b>
Age	Below 18 years	4	1.6
	25-34 years	95	39.1
	35-44 years	103	42.4
	Above 45 years	41	16.9
Gender	Male	103	42.4
	Female	140	57.6
Marital Status	Married	129	53.1
	Single	28	11.5
	Separated	16	6.6
	Divorced	31	12.8
	Widowed	39	16
Religion	Orthodox/Catholic	59	24.3
	Muslim	17	7.0
	Protestant	167	68.7
Number of children	None	21	8.6
	Between 1-3 Children	154	63.4
	Between 4-6 Children	61	25.1
	>6 Children	7	2.9
Living Condition	Living with family	84	34.6
	Living alone	159	65.4
Educational Status	Illiterate	88	36.2
	Literate	155	63.8
Occupation	Housewife	26	10.7
	Daily laborer	28	11.5
	Unemployed	19	7.8
	Civil Servant	72	29.6
	Merchant/Business	98	40.3
Monthly income in Kenyan Shillings	<10,000	82	33.7
	Between 10,000 to 30,000	89	36.6
	Between 30,001 to 50,000	60	24.7
	Between 50,001 to 70,000	9	3.7
	Between 70,001 to 100,000	2	0.8
	>100,000	1	0.4

The second socio-demographic data collected from the respondents was on their gender. The results detailed in table 4.2 show that more than more than a half (57.6 percent, n=140) of the respondents were female whereas 42.4 percent (n=103) were male. This could be attributed to the fact that more women than men are tested for HIV particularly during antenatal clinic visits. This finding is consistent with the evidence in the national HIV prevalence statistics in Kenya with females at 6.6 percent compared to 3.1 percent for males (Kenya Population-based HIV Impact Assessment [KENPHIA], 2020). However, this statistic is based on those individuals who go for testing where more females than males undergo HIV testing, especially during antenatal care.

On the respondent's marital status, findings showed that more than a half (53.1 percent, n=129) of the respondents were married while slightly above ten percent (11.5 percent, n=28) were single. Moreover, the result demonstrated that there were respondents who were separated (n=16, 6.6 percent), divorced (n=31, 12.8 percent), and widowed (n=39, 16 percent). In terms of religion, majority (n=167, 68.7 percent) of the respondents were protestants whereas the rest belonged to the orthodox (n=59, 24.3 percent) and Muslim (n=17, 7 percent) groups.

Assessment of the number of children that respondents had showed that majority (n=154, 63.4 percent) had 1-3 children, above two-tenths (n=61, 25.1 percent) had 4-6 children while those who had more than 6 children were less than a tenth (n=7, 2.9 percent). A 2020 policy brief on the impact of COVID-19 on children by the United Nations noted that although children were not directly affected by the pandemic, they risked being at the centre of the population, which could possibly be impacted by COVID-19. In fact, the

report highlighted the plight of children, particularly in the spectrum of their health and survival, propensity of falling into poverty, and worsening the learning crisis. Measures designed to stem the spread of the pandemic, especially the countrywide lockdowns and school closures, disproportionately affected school-going children as well as the general population seeking healthcare services.

On the living condition of the respondents, results showed that slightly above thirty percent (n=84, 34.6 percent) were living with their families while the majority (65.4 percent, n=159) of the respondents were living alone. This contrasts with past scientific evidence (see, for example, Li et al., 2006) which shows that people living with HIV require help and much of the support comes from their immediate families. The support from the family includes psychological support, medical assistance, daily routine activities, support in the disclosure process, and financial assistance. The COVID-19 pandemic created uncertain situation with the requirement to maintain social distance and reduce social interactions. Consequently, these requirements intensified levels of anxiety and stress, which as a whole had a psychological impact on the mental well-being of individuals, in addition to the common direct risk to the physical health (UNAIDS, 2020a).

With regards to the educational status, findings from the study revealed that majority (n=155, 63.8 percent) of people living with HIV were literate while above a third (n=88, 36.2 percent) were illiterate. While quantitative evidence in the early 1990s showed that higher education level was associated with higher HIV infection rates, evidence that is more recent demonstrates that, lower HIV prevalence and safer sexual behavior are

influenced with more years of education. More importantly, literate people living with HIV possessing significant levels of health literacy on their condition are able to implement strategies that could improve adherence to health guidance (Cunha et al., 2017). Similarly, literate people are knowledgeable about the symptoms of COVID-19 and the factors associated with high risk of the virus.

On occupation of the respondents, results of the study indicated that majority (n=98, 40.3 percent) of people living with HIV were businesspersons/merchants, almost a third (n=72, 29.6 percent) were civil servants while the rest were daily laborers (n=28, 11.5 percent), housewives (n=26, 10.7 percent), and unemployed (7.8 percent, n=19).

Moreover, results from the evaluation of the monthly income of the respondents demonstrated that majority (n=89, 36.6 percent) of them generated a monthly income of between 10,000 to 30,000 Kenyan Shillings while slightly above a third (n=82, 33.7 percent) earned an income of less than 10,000 Kenyan Shillings. The findings on the monthly income of the respondents show that most PLHIV fall in the low-income category, which increases their vulnerability to socioeconomic shocks. In fact, PLHIV are more likely to be engaged in fringe jobs characterized by very short term contracts arising from discrimination and therefore, closures of businesses and institutions aimed at combating COVID-19 meant that they were the among first layer of employees to be laid off since they are on temporary contracts. Consequently, majority of the PLHIV were likely affected by these lay-offs further exacerbating the already dire situation. Similarly, extant empirical evidence suggests that unemployment among people living with HIV is largely caused by ill health (Grob et al., 2016).

### **4.3 Access to HIV Services**

The first objective of the study was to determine the COVID-19 containment policy measures that affected access to HIV services for persons living with HIV in Ruaraka Sub-county. Respondents to the study were asked to state whether they had experienced any challenges or difficulties in accessing HIV services since the outbreak of the COVID-19 pandemic in Kenya. This question was binary in nature and thus, respondents were required to state a 'yes' or 'no' answer to the question. Figure 4.1 below summarizes the results under the subsection.

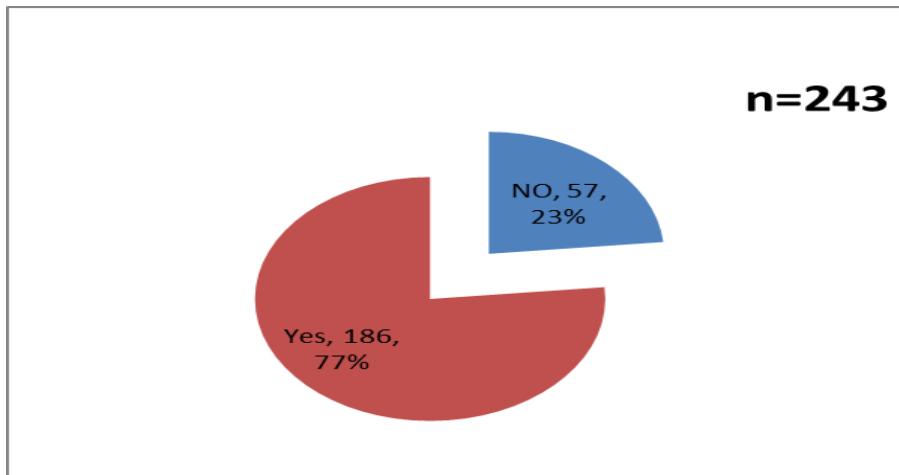
Based on the results of the study, majority (77 percent, n=186) of the respondents experienced challenges in accessing HIV services after the outbreak of COVID-19 in the country with only 23 percent, (n=57) indicating that they did not face any difficulty in accessing services related to HIV treatment. Containment measures such as cessation of movement and closure of businesses, restrictions in the transport sector, which were accompanied by increased transport fares as well as requirements to wear masks could have either impeded access to services or increased the cost of living among PLHIV thereby aggravating challenges of access to services.

The intersection between HIV and COVID-19 involve adverse socioeconomic and health impacts on high HIV prevalence, limited social protection, fragile health systems, and the already existing vulnerabilities. The 2020 UNAIDS report on COVID-19 and HIV Progress noted that the pandemic's response measures directly and indirectly affected HIV programs, worsened inequalities, and weakened human rights. HIV-related vulnerabilities are prone to increase amidst the pandemics and cause disproportionate

negative impacts on middle and low-income countries where there is extreme marginalization and poverty.

**Figure 4.1**

***Challenges Accessing HIV Services***



A follow-up question was posed to the respondents regarding specific COVID-19 containment policy measures that affected their routine access to HIV services. Responses to this question were from respondents who indicated that they experienced challenges accessing HIV services (n=186) as indicated in figure 4.1. Respondents were provided with the COVID-19 attendant policy measures, which were introduced by the Kenyan government to slow down the spread of the virus, and were expected to indicate the extent to which they disagreed or agreed with each of them on a 5-point likert scale. Table 4.3 summarizes findings on the COVID-19 containment measures, which affected access to HIV services for people living with HIV.

Results contained in table 4.3 show that 60.2 percent of the respondents cited closure of public transport as one of the aspects that affected their routine access to HIV services.

Similarly, majority 61.2 percent of the respondents agreed that cessation of movement impeded their access to HIV-related services whereas 61.2 percent of the respondents were of the view that the stay at home requirement, which was imposed by the government to slowdown the sprawling of the virus hindered their access to HIV services. In addition, 56.9 percent of the respondents noted that the curfew affected their access to various HIV-related services while on the other hand 83.3 percent of study participants stated that public transport limitation on passenger capacity hampered their access to HIV services in various clinics. These findings suggest that, to a large extent, the COVID-19 containment measures have had a negative impact not just on the ordinary way of life but also access to critical services including HIV services by PLHIV.

**Table 4.3**

***COVID-19 Containment Policy Measures and Access to HIV Services***

<b>COVID-19 Containment Measure</b>	<b>Disagree</b>		<b>Neutral</b>		<b>Agree</b>		<b>Chi- Square</b>	<b>Asymp . Sig.* p-value</b>
	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>		
Closure of public transport	17	9.1	57	30.6	112	60.2	38.903	0.00
Cessation of movement	35	18.8	37	19.9	114	61.2	56.366	0.00
Stay at home requirement	57	30.6	15	8.1	114	61.2	39.054	0.00
Curfew	55	29.5	25	13.4	106	56.9	31.849	0.00
Public transportation limitation on passenger capacity	10	5.4	21	11.3	155	83.3	164.753	0.00
Quarantine	76	40.9	21	11.3	89	47.8	91.097	0.00
Reduction of service hours in clinics	113	60.8	37	19.9	36	19.4	52.333	0.00

Equally, quarantine (47.8 percent) and reduction of service hours in clinics (19.4 percent) affected respondents' access to HIV services. These findings were statistically significant with asymptotic significance  $p$ -values=0.00 being within the required threshold of  $p < 0.05$  at the 95 percent confidence level. The asymptotic significance  $p$ -value of less than 0.05 shows that there are significant differences in the extent to which respondents disagreed or agreed with each of the COVID-19 containment measures. In other words, more respondents agreed that COVID-19 containment measures (for example, closure of public transport and cessation of movement) negatively affected access to HIV services than those who disagreed or were neutral, and this relationship was statistically significant. Quarantine measure was one of the most severe containment guideline, as it required one to be confined to a particular place with limited or no social contact at all. This implied that one could not move outside the quarantine facility until the isolation period elapses. As a result, PLHIV who were put under quarantine most likely missed essential services. This therefore implies that the quarantine policy measures put in place by the Government had a significant negative impact on the access of HIV services by PLHIV.

The results herein are in agreement with recent literature and other empirical studies undertaken in the context of COVID-19 and HIV. Jiang et al. (2020) noted the efforts that were being coordinated by governments in partnerships with communities and various global bodies presented many barriers and challenges to the HIV care continuum. Further, the authors stated that there was reduced HIV care, especially uptake of ART, among people newly infected with the HIV virus. A study carried out by Pinto and Park (2020) to understand how COVID-19 pandemic affected the HIV prevention and continuum of care revealed that physical distancing between clients and providers



negatively affected how frequent clients were linked to HIV services by frontline workers.

Amimo et al. (2020) observed that the introduction of measures or policies to stop the further spread of the COVID-19 virus, such as town lockdowns and stay at home requirement, limited access to HIV services through lack of means of transport to healthcare facilities, as well as the diminished capability to generate adequate income to cover medical expenses. Nyoni and Okumu (2020) averred that shelter-in-place and social distancing protocols that were important for the prevention and containment of the spread of COVID-19 might have acted as barriers to ART treatment. In a study by Darcis et al. (2020) that sought to understand the impact of COVID-19 containment measures on HIV diagnosis found out that the number of HIV diagnoses and screening reduced by a bigger margin because of implementation of measures to contain spread of COVID-19.

#### **4.4 Coping Strategies**

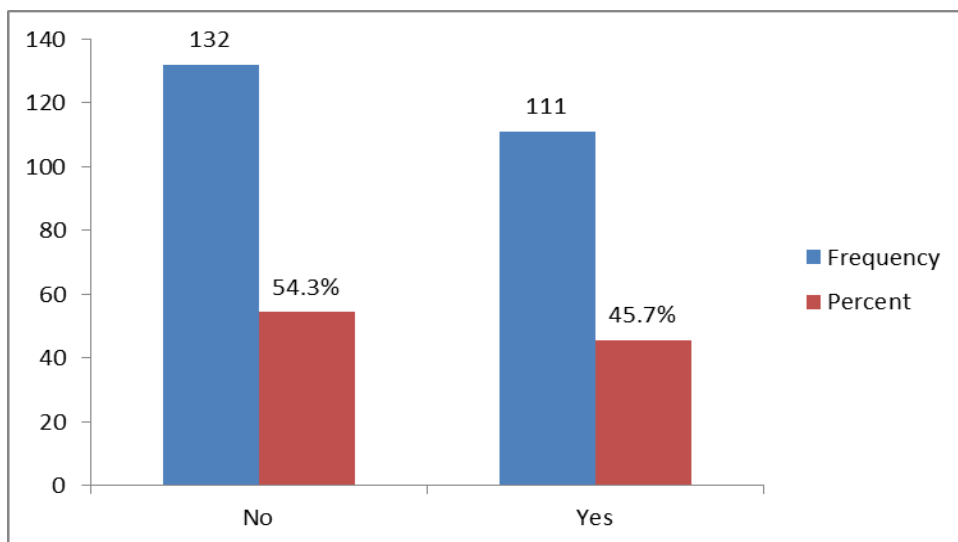
The second objective of the study was to assess the coping strategies used by people living with HIV to enable access to HIV services under the new COVID-19 containment policy measures. The COVID-19 pandemic has occasioned several challenges for people living with HIV who require uninterrupted access to antiretroviral therapy. Steady access to ART is critical towards maintenance of good health and ensuring that the virus is under control. Clinical studies succinctly show that interruptions in ART can lead to adverse long-term effects on people living with HIV (Yang et al., 2021).

Respondents to the study were asked to state whether they experienced interrupted supply to ART after COVID-19 containment policy measures were introduced in the country.

Based on the results presented in figure 4.2 below, majority (54.3 percent, n=132) of the respondents indicated that they did not experience interrupted supply of ART after the implementation of measures to stem the spread of COVID-19. This finding suggests that either majority of PLHIV or their HIV service providers had responded swiftly when the pandemic started by putting in place proper mechanisms to ensure continued access to ARTs.

**Figure 4.2**

*Interrupted supply of ART*



On the other hand, slightly less than a half (45.7 percent, n=111) of the respondents reported that there were interruptions in the provision of ART as shown in figure 4.2. This point to the potential negative impact of COVID-19 containment measures on the access to HIV services.

A follow-up question was posed to the respondents (n=111) who had acknowledged that they had interruptions in the supply of ART regarding the strategies with which they were able to maintain continued access to this treatment amidst the enactment of the guidelines

to control the heightened spread of COVID-19. In other words, respondents to the study were required to identify the coping strategies that they used to ensure steady access to antiretroviral therapy after their current supplies ran out. In effect, respondents were provided with a wide range of strategies that people living with HIV can possibly use to ensure that they maintain access to ART when they experience interruptions because of the COVID-19 pandemic and were expected to indicate the ones they used. Results under this sub-section are collated in table 4.4 below.

**Table 4.4**

*Coping Strategies*

<b>Coping Strategies</b>	<b>n=243</b>	<b>f</b>	<b>%</b>	<b>Chi-Square</b>	<b>Asymp. Sig. P-value</b>
Refill antiretroviral drugs at the nearest clinics		41	19.2	106.671 <sup>a</sup>	.000
Maintain enrolment at the present treatment centre to continue ART		50	23.5	84.152 <sup>a</sup>	.000
Maintain 3-6 months doses to reduce clinic visits		91	42.7	15.313 <sup>a</sup>	.000
ART distribution through community-based delivery		31	14.6	134.819 <sup>a</sup>	.000

Based on the results detailed in table 4.4 above, 19.2 percent (n=41) of the respondents stated that they refilled antiretroviral drugs at the nearest clinic. This result was found to be statistically significant at the 95 percent confidence level with the p-value=0.00<0.05. In addition, 23.5 percent (n=50) of the respondents reported that they maintained enrolment at their treatment centres to continue ART (p-value=0.00<0.05). Moreover, 42.7 percent (n=91) of the respondents indicated that they maintained 3-6 months doses to reduce clinic visits (p-value=0.00<0.05) whereas 14.6 percent (n=31) averred that they relied on ART distribution through community-based delivery (p-value=0.00<0.05).

These findings suggest that the actors involved in providing access to ARTs together with PLHIV responded quickly to the changes occasioned by the pandemic to avert a potential crisis following the enforcement of COVID-19 containment measures.

The findings herein mirror those advanced in academic literature and policy guidelines provided by different organizations that have interest in HIV programming. For example, Prabhu et al. (2020) posited that several countries were adversely affected by COVID-19 in regards to delivery of HIV care, but offered them opportunities to accelerate operational strategies, such as multi-month ART. This compares favorably with efforts put in place by the Ministry of Health in Kenya, where differentiated service delivery guidelines were issued so that people living with HIV on ART were eligible for 3-multi-month dispensing (3-MMD) regardless of their viral load. Similarly, 3-MMD approach was also advocated in other African countries, such as Ethiopia, Liberia, and Cote d'Ivoire. Sun et al. (2020) stated that hospitals and clinics involved in HIV care and treatment in China came up with protocols, especially mailing, to ensure that there was continued access to medication by people living with HIV who experienced insufficient medication and disrupted care.

#### **4.5 Psychological Distress**

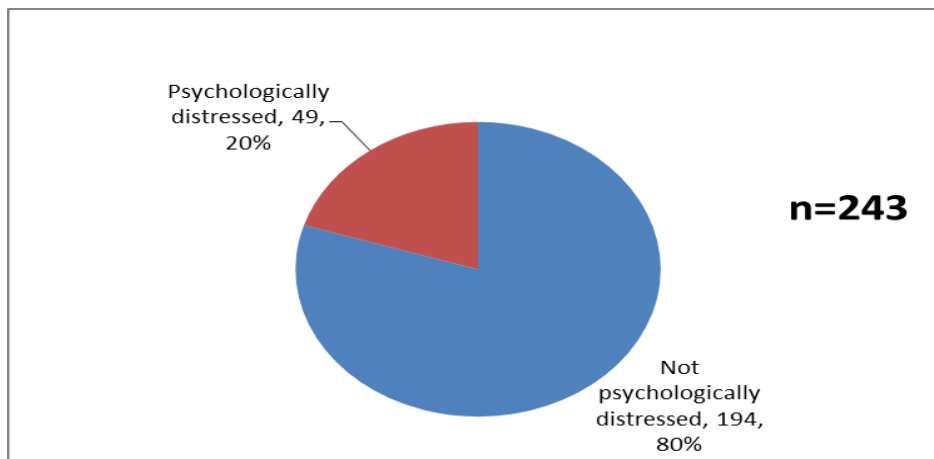
The third objective of the study was to assess the impact of COVID-19 containment policy measures on psychological distress among people living with HIV. In this objective of the study, the prevalence of psychological distress among people living with HIV and the intersection between outcomes of COVID-19 containment policy measures and psychological distress have been highlighted and discussed. In addition, the section presents factors associated with the psychological distress.

#### 4.5.1 Prevalence of Psychological Distress

The present study used an interviewer-based self-reported questionnaire (SRQ-20) to determine psychological distress among the respondents. The World Health Organization recommends use of the SRQ-20 tool to screen for presence of psychiatric disturbances in people. Questions in the SRQ were binary in nature wherein respondents were expected to choose either Yes or No. A No response received a zero point while a Yes answer scored one point with the total score being 20. A score equal to or greater than 11 implies that a person suffers from psychological distress. Figure 4.3 below summarizes the results of the study.

**Figure 4.3**

#### *Psychological Distress*



Based on the computations from the interviewer-based self-reported questionnaire (SRQ-20), 80 percent (n=194) of the respondents had a score of less than 11, suggesting that they did not experience psychological distress. On the other hand, 20 percent (n=49) of the respondents had scores equal to or greater than 11 and thus, signaling presence of psychological distress. In effect, the prevalence of psychological distress based on the

sample size of the study was 20.2% (95% CI: 15.2%, 25.1%). The prevalence of psychological distress was estimated from the number of respondents who experienced psychological distress (n=49) divided by the sample size of the study from which data was collected (n=243).

Although COVID-19 is a recent pandemic that spread globally starting towards the end of 2019, it has received considerable academic interest where several publications were made available on the intersection between this virus and psychological distress. For instance, Ambelu et al. (2021) indicated that the COVID-19 pandemic caused serious mental health problems like fear, panic, denial, depression, anxiety, and psychological distress. While COVID-19 has led to a wide range of disruptions, mostly on the livelihoods of people because of market stockpiling and increase in food costs, vulnerable communities and minority groups in low-income countries, especially those with marginalized and stigmatized intersecting identities, such as PLHIV, have to deal with additional burden. As a result, even though psychological distress among PLHIV could have existed before, it has been further exacerbated by socioeconomic disruptions occasioned by COVID-19. Chenneville et al. (2020) indicate that COVID-19 and HIV have common anxiety and fear related to transmission while Ho et al. (2020) note that mental health disorders are worsened by the general pandemic fear.

This result of the study is comparable to previous studies on the intersection between HIV and psychological distress. For instance, a study by Basha et al. (2019) established that psychological distress among people living with HIV in Ethiopia was 7.8 percent while a cohort study in India undertaken by Schade et al. (2013) revealed a prevalence of

12%. The level of prevalence of psychological distress established by the present study appears higher than in other studies, for example, Schade et al., (2013) and Basha et al., (2019), conducted among people living with HIV. This could be attributed to the fact that amidst the COVID-19 pandemic, the world is dealing with two viruses, which have resulted into a twin epidemic (both COVID-19 and HIV) and thus, heightening the level of anxiety in the society given past experience with HIV-AIDS pandemic and the emerging catastrophic evidence on COVID-19.

The prevalence revealed by the current study is in line with a study conducted by Algoodkar et al. (2017) that established a higher prevalence of 30 percent among clinically stable people living with HIV/AIDS on antiretroviral therapy. The inconsistencies in prevalence rate among the above-mentioned studies as well as for this study might be because of environmental, study design, and sociocultural factor differences. A study by Tesfaye and Bune (2014) established that the prevalence of psychological distress among people living with HIV in Ethiopia was 11.2% where the factors associated with generalized psychological distress included not disclosing HIV status, negative life events, low social support, and moderate stress. A study conducted in Togo in the year 2017 by Tchankoni et al. (2020) found out the prevalence of psychological distress among people living with HIV was 13.7% (95% CI: 12.2%, 15.2%) and it was associated mostly with hazardous alcohol consumption and high age. The above-mentioned studies (Tchankoni et al., 2020; Tesfaye & Bune, 2014) are a sharp pointer to the fact that people living with HIV experienced psychological distress, depression, anxiety, stigma and discrimination even before the outbreak of the novel coronavirus. Although these challenges existed before, it is worth noting that COVID-19

further exacerbated and heightened them. The rise in these challenges could be attributed to loss of income, social networks and interrupted access to HIV services following COVID-19 containment measures aimed at curbing the spread of the disease.

#### **4.5.2 Intersection between outcomes of COVID-19 containment policy measures and psychological distress**

Respondents to the study were provided with various outcomes of COVID-19 containment policy measures and were required to indicate the extent to which each of them might have contributed to psychological distress among people living with HIV. The results of the study under this subsection are collated in table 4.5 below.

**Table 4.5**

#### *Outcomes of COVID-19 Containment Policy Measures*

<b>Outcomes of COVID-19 Containment Policy Measures</b>	<b>Disagree</b>		<b>Neutral</b>		<b>Agree</b>		<b>Asymp. Sig.* p-value</b>
	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>	
Disrupted HIV continuum of care	38	15.6	71	29.2	134	55.2	0.00
Diminished resources and ability to generate income	49	20.2	8	3.3	186	76.6	0.00
Closure of organization providing HIV services	133	54.8	46	18.9	64	26.3	0.00
Job loss	1	0.4	4	1.6	238	98	0.00
Closure of opportunities in the non-formal education	32	13.2	70	28.8	141	58	0.00

Based on the results collated in table 4.5, 55.2 percent of the respondents were of the view that disrupted HIV continuum of care as an outcome of COVID-19 contributed to psychological distress among people living with HIV. Similarly, 76.6 percent of the



respondents stated that diminished resources and ability to generate income resulted to psychological distress among PLHIV. Closure of organizations providing HIV services, 26.3 percent, job loss, 98.0 percent, and closure of opportunities in the non-formal education, 58.0 percent, led to psychological distress among people living with HIV. The asymptotic significance p-values,  $p\text{-value}=0.0 < 0.05$  indicate that these results are statistically significant at the 95 percent confidence level. In other words, there are significant differences among the respondents who disagreed, agreed, and were neutral on the effect of the outcomes of COVID-19 containment policy measures on psychological distress. This suggests that the disruptions on the continuum of HIV services resulted in psychological distress to PLHIV.

Emerging empirical evidence demonstrates that indeed COVID-19 control guidelines put in place by governments worldwide to stem the spread of the virus might have led to low cases of the disease; however, they had a disproportionate effect in some countries, especially those in Sub-Saharan Africa. A study by Quaife et al. (2020) established that there was insufficient money for food and people experienced partial or total loss of income because of COVID-19 control measures. Whilst low epidemic growth was experienced in most developing countries, implementation of control measures caused substantial food and economic insecurity. Evidence shows despite stay-at-home orders and workplace closures, as some of the COVID-19 control measures, being effective in limiting infections; they had serious economic ramifications, which indirectly caused fear and anxiety (Ambelu et al., 2021).

### 4.5.3 Factors Associated with Psychological Distress

Multivariate logistic regression analysis was used to determine factors associated with psychological distress among people living with HIV. Variables that were included in the logistic regression model were socio-demographic characteristics, substance use (alcohol), and access to HIV services. The specific socio-demographic characteristics were gender, living condition, education status, and marital status.

**Table 4.6**

#### *Results of Multivariate Logistic Regression*

<b>Variable</b>	<b>P-Value</b>	<b>Adjusted Odds Ratio (AOR)</b>	<b>95% Confidence Interval (CI)</b>
Gender (1)	0.00	1.822	1.05-5.62
Living Condition(1)	0.00	2.302	1.01-5.13
Education Status (1)	0.00	1.585	0.81-2.91
Marital Status (1)	0.39	.957	0.65-1.78
Access to HIV Services (1)	0.00	0.884	0.08-0.72
Alcohol use (1)	0.76	1.115	0.49-4.39

Results from the multivariate logistic regression analysis showed that being female, illiterate, living alone, and experiencing challenges in accessing HIV services amidst the COVID-19 pandemic were statistically significant with psychological as represented by a p-value equal to  $0.00 < 0.05$ . Moreover, being married and participants' use of alcohol were associated with psychological distress, but the relationship was not statistically significant ( $p > 0.05$ ).

The findings of the study contained in table 4.6 above show that female participants were two times (AOR=1.822; 95% CI: 1.05, 5.62) more likely to suffer from psychological distress than male participants. This finding is in tandem with other previous studies that established that more females than males suffered from psychological distress. For

example, studies by Algoodkar et al. (2017), Kinyanda et al. (2011), and Obadeji et al. (2014), found out being female was statistically and significantly associated with psychological distress than males. These studies attribute these findings to difficult socioeconomic factors, as women have to look after their children especially where they are abandoned by their spouses and family member upon discovery of their HIV status. Such socioeconomic challenges were worsened by the COVID-19 containment measures, which affected the ordinary way of live.

On top of the above, respondents who were living alone during the COVID-19 pandemic were two times (AOR=2.302; 95% CI: 1.01, 5.13) more likely to be susceptible to psychological distress than those who lived with their families. Ho et al. (2020) state that living alone due to social isolation is more likely to lead to mental health problems, especially among the elderly. However, this result differs with other studies, for example, Huang et al.( 2020), which found out that living with family members was associated with higher psychological distress.

Respondents who were illiterate were more likely (AOR=1.585; 95% CI: 0.81, 2.91) to experience psychological distress than those who were literate. This might be possible because literate people are knowledgeable about the symptoms of COVID-19 and the factors associated with high risk of the virus, including possessing significant levels of health literacy on their HIV condition and the strategies that they can implement to improve adherence to health guidance (Cunha et al., 2017). This finding is consistent with that of Basha et al. (2019), which established that illiterate people living with HIV

were 3 times more likely to be affected by psychological distress than those who are literate.

Besides, respondents who indicated that they faced difficulty accessing HIV services since the outbreak of the COVID-19 pandemic experienced psychological distress than those who did not encounter any challenges (AOR=0.884; 95% CI: 0.08, 0.72). Extant literature on the intersection between COVID-19 and HIV shows that heightened stigma within the context of HIV, risk of someone's HIV status being revealed, disruption of HIV care and medication uptake, might have exacerbated mental health among PLWH during the COVID-19 outbreak (Ambelu et al., 2021). Most of the psychological challenges that people living with HIV face include insomnia, anxiety symptoms, and depression. A study by Sun et al. (2020) found that PLHIV were worried about their future clinical care because of disruption, as well as the interruption in uptake of medication of the implementation of various COVID-19 containment guidelines.

#### **4.6 Knowledge on COVID-19**

The fourth objective of the study was to determine COVID-19 knowledge among people living with HIV. Amidst the COVID-19 pandemic, it is critical for individuals to possess knowledge on the symptoms and factors associated with high risk of the virus as this informs the precautionary and preventive measures to take in order to control the spread of the disease. In this regard, respondents to the study were provided with various symptoms of COVID-19 and were required to indicate whether they were true or false. Table 4.7 below summarizes the findings.

**Table 4.7*****Knowledge on Symptoms of COVID-19***

<b>Symptoms</b>	<b>False</b>		<b>True</b>	
	<b>Freq.</b>	<b>%</b>	<b>Freq.</b>	<b>%</b>
Fever or chills	6	2.5	237	97.5
Cough	5	2.1	238	97.9
Shortness of breath or difficulty breathing	8	3.3	235	96.7
Fatigue	9	3.7	234	96.3
New loss of taste or smell	8	3.3	235	96.7
Headache	4	1.6	239	98.4
Muscle or body aches	3	1.2	240	98.8
Sore throat	3	1.2	240	98.8
Congestion or runny nose	9	3.7	234	96.3
Diarrhea	41	16.9	202	83.1
Nausea or vomiting	33	13.6	210	86.4

Table 4.7 illustrates the knowledge of the PLHIV on symptoms of COVID-19. Analysis of the collected data revealed that majority (97.5 percent, n=237) of the respondents indicated that fever and chills symptomized presence of COVID-19, whereas cough as a symptom of covid-19 was indicated was indicated by majority (97.9 percent, n=238) of the respondents. Similarly, shortness of breath or difficulty in breathing was also reinforced by majority (96.7 percent, n=235) as a symptom of COVID-19. Further analysis of data indicated that PLHIV agreed that fatigue was a key symptom of COVID-19 as evidenced by majority (96.3 percent, n=234) of the respondents. PLHIV considered in the study agreed that loss of taste or smell was a symptom of COVID-19 as supported by almost all (96.7 percent, n=235) respondents, whereas headache as symptom of COVID-19 was underscored by majority (98.5 percent, n=239) of the respondents as a symptom of the virus. Knowledge on muscle or body aches was underlined by majority (98.8 percent, n=240) of the respondents, while knowledge on sore throat as a COVID-19

symptom was reinforced by nearly all (98.8 percent, n=240) respondents. PLHIV's knowledge on congestion or runny nose as a COVID-19 symptom was reported by majority (96.3 percent, n=234) while diarrhea knowledge as a symptom of COVID-19 was indicated by majority (83.1 percent, n=202) whereas awareness of nausea or vomiting as a symptom of COVID-19 was revealed by majority (86.4 percent, n=210) of the respondents.

The findings reported from above are contrastable to the existing publications on the symptoms of COVID-19 given that many of the researches point to the above results. For instance, Cooper et al. (2020) stated that PLHIV were aware that cough, headache, and fatigue were core symptoms exhibited by COVID-19 patients, while Winwood et al. (2021) asserted that body aches and loss of taste and smell were some of the symptoms that PLHIV were aware and had knowledge on. This congruence of the existing evidence on the knowledge of PLHIV on COVID-19 affirms that this cluster of respondents were adequately informed on the symptoms of COVID-19, signifying that manifestation of any of the symptoms reviewed in this paper was within the understanding and purview of PLHIV. The government of Kenya through the Ministry of Health has been at the forefront in disseminating important information on the symptoms associated with COVID-19 and thus, the knowledge of PLHIV on COVID-19 can be attributed to the guidelines provided by the ministry.

The study also sought to establish knowledge of various risk factors associated with high risk of COVID-19 by asking respondents to indicate the extent to which they agreed or disagreed with each risk factor. Table 4.8 illustrates the knowledge on covid-19 risk

factors by PLHIV, where analysis of the collected data indicated that all (100.0 percent, n=243) respondents had knowledge that older age was a risk factor associated with COVID-19.

**Table 4.8**

***Knowledge on COVID-19 Risk Factors***

Risk Factors	Disagree		Neutral		Agree	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
Older age	0	0.0	0	0.0	243	100.0
Pre-existing cardiovascular diseases	0	0.0	15	6.2	228	93.8
Poverty and crowding	95	39.0	32	13.2	116	47.7
Pregnancy	111	45.7	82	33.7	50	20.6
Physical inactivity	170	70.0	24	9.9	49	20.2
Air pollution	124	51.0	22	9.1	97	39.9
Respiratory Disease	10	4.2	100	41.2	133	54.7
Alcohol and smoking	109	44.9	92	37.9	42	17.3

Furthermore, majority (95.8 percent, n=228) of the respondents reported that they understood that pre-existing cardiovascular diseases predisposed people to COVID-19. Notably, the study established that PLHIV had sufficient knowledge that poverty and overcrowding increased susceptibility of people to contract COVID-19 as supported by majority (47.7 percent, n=116) of the respondents. This response had substantial number of respondents who disagreed with the statement that poverty and overcrowding was a risk factor associated with COVID-19. Majority (45.7 percent, n=111) of the respondents disagreed that pregnancy was a risk factor associated with COVID-19, whereas physical inactivity was declined as a predisposing factor to COVID-19 by majority (70.0 percent, n=170) of the respondents who disagreed.

Respondents' knowledge on air pollution as a COVID-19 risk factor was tested, where majority (51.0 percent, n=124) disagreed that air pollution predisposed people to COVID-19. Knowledge on respiratory disease as a risk factor of COVID-19 was assessed, where majority (54.7 percent, n=124) of the respondents agreed that respiratory diseases increased susceptibility of the people to contract COVID-19, while alcohol and smoking as a COVID-19 risk factor was disagreed by majority (44.9 percent, n=109) of the respondents.

Findings in this section are relatable to the existing evidence on COVID-19 risk factors, where studies done in this area appear to reinforce the results established herein. For instance, results in this section are comparable to a study done by Li et al. (2020) in Wuhan China, where cardiovascular and respiratory diseases were associated with severe mortality among adult in-patients with COVID-19. Similarly, results in this section are in agreement with a study conducted by Zhang et al. (2020) who stated that older age, particularly for males above 65years and cardiovascular diseases were the leading risk factors associated with COVID-19.

According to the guidelines on case management of COVID-19 provided by the Kenyan government through the Ministry of Health, up to 30% of patients who have severe COVID-19 have existing poorly controlled comorbidities, the most common being chronic lung disease, asthma, hypertension, HIV, diabetes mellitus, and cardiovascular disease (MoH, 2021). Patients with diabetes are at a higher risk of COVID-19 if they are suffering from other underlying conditions, such as kidney disease, chronic obstructive pulmonary disease, hypertension, and heart failure. To this end, the current study deduces



that existing cardiovascular diseases, old age, and respiratory diseases were rightfully indicated by respondents as key risk factors associated with COVID-19. Overall, the findings from this research work demonstrate that respondents' knowledge on COVID-19 symptoms was higher than that of risk factors.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.0 Introduction**

This chapter of the study summarizes the key findings that arose in chapter four followed by conclusions and recommendations based on the overall outcome of the study.

#### **5.1 Summary**

The purpose of this study was to determine the effect of COVID-19 containment policy measures on access to HIV services for persons living with HIV in Ruaraka Sub-County. This study was informed by the following objectives; to determine the COVID-19 containment policy measures that affected access to HIV services for persons living with HIV; to assess the coping strategies used by people living with HIV to enable access to HIV services under the new COVID-19 containment policy measures; to assess the impact of COVID-19 containment policy measures on psychological distress among people living with HIV; and to determine COVID-19 knowledge among people living with HIV. Data was collected from people living with HIV use questionnaires and the interview-based self-reported questionnaire (SRQ-20) where the latter was used to screen for existence of psychological distress. Summary of the findings has been carried out systematically based on each of the objectives of the study.

##### **5.1.1 Access to HIV Services**

The first objective of the study was to determine the COVID-19 containment policy measures that affected access to HIV services for persons living with HIV in Ruaraka Sub-county. Based on the findings of the study, COVID-19 containment policy measures affected access to HIV services for persons living with HIV. The specific COVID-19

containment guidelines that affected access to HIV included closure of public transport, cessation of movement, stay at home requirement, curfew, public transportation limitation on passenger capacity, quarantine, and reduction of service hours in clinics.

### **5.1.3 Coping Strategies**

The second objective of the study was to assess the coping strategies used by people living with HIV to enable access to HIV services under the new COVID-19 containment policy measures. The study results established that people living with HIV used various coping strategies to enable them access HIV services under the new measures designed to stem the spread of COVID-19. Specifically, it was revealed that PLHIV refilled antiretroviral drugs at the nearest clinics, maintained enrolment in their treatment centre to continue ART, and maintained 3-6 months' doses to reduce clinic visits. In addition, ART distribution through community-based delivery was another coping strategy used to maintain continued access to ART amidst the implementation of COVID-19 containment protocols in the country.

### **5.1.2 Psychological Distress**

The third objective of the study was to assess the impact of COVID-19 containment policy measures on psychological distress among people living with HIV. The results of the study revealed that the prevalence of psychological distress was 20.2% (95 percent CI: 15.2 percent, 25.1 percent) among people living with HIV. According to the findings of the study, the outcomes of COVID-19 containment policy measures contributed to psychological distress among people living with HIV. The results of the study revealed that disrupted HIV continuum of care, diminished resources and ability to generate income, and closure of organization providing HIV services, as outcomes of COVID-19

containment policy measures, significantly contributed to psychological distress that people living with HIV were experiencing. Moreover, job loss and closure of opportunities in the non-formal education as outcomes of COVID-19 containment guidelines led to psychological distress among people living with HIV. Results from the multivariate logistic regression analysis showed that being female (AOR=1.822; 95% CI: 1.05, 5.62;  $p<0.05$ ), illiterate (AOR=1.585; 95% CI: 0.81, 2.91;  $p<0.05$ ), living alone (AOR=2.302; 95% CI: 1.01, 5.13;  $p<0.05$ ), and experiencing challenges in accessing HIV services (AOR=.884; 95% CI: 0.08, 0.72;  $p<0.05$ ) amidst the COVID-19 pandemic were associated with psychological distress ( $p<0.05$ ).

#### **5.1.4 Knowledge on COVID-19**

The fourth objective of the study was to determine COVID-19 knowledge among people living with HIV. The results of the study showed that people living with HIV were aware of fever, cough, shortness of breath or difficulty breathing, fatigue, new loss of taste or smell, headache, and muscle or body aches being symptoms of COVID-19. Similarly, sore throat, congestion or runny nose, diarrhea, and nausea or vomiting were other symptoms of COVID-19 that PLHIV demonstrated to have knowledge. Regarding knowledge on COVID-19 risk factors, findings of the study revealed that PLHIV were highly knowledgeable about older age, pre-existing cardiovascular diseases, and respiratory disease being high risk factors of contracting COVID-19. Similarly, PLHIV exhibited knowledge on poverty and crowding, pregnancy, physical inactivity, air pollution, alcohol and smoking as factors associated with high risk of COVID-19, albeit to a smaller extent.

## **5.2 Conclusions**

Based on the findings of the study, the study concluded that COVID-19 containment policy measures affected access to HIV services for persons living with HIV. Closure of public transport, cessation of movement, stay at home requirement, curfew, public transportation limitation on passenger capacity, quarantine, and reduction of service hours in clinics as some of COVID-19 containment policy measures implemented in Kenya negatively affected access to HIV services by people living with HIV.

The study established that people living with HIV used coping strategies such as refilling antiretroviral drugs at the nearest clinics, maintaining enrolment at their usual treatment centre, maintaining 3-6 months doses to reduce clinic visits, and ART distribution through community-based delivery to enable them access HIV services under the new measures designed to stem the spread of COVID-19. Accordingly, the study concluded that refill of antiretroviral drugs at the nearest clinics, maintaining enrolment in the current treatment centre to continue ART, maintaining 3-6 months' doses to reduce clinic visits, and ART distribution through community-based delivery are some of the coping strategies used by PLHIV to enable access to HIV services under the new COVID-19 containment policy measures. However, the results of the study demonstrate that these coping strategies used by PLHIV to enable access to HIV services were not adequate given that they were used sparingly by the respondents since did not alleviate completely challenges experienced in accessing HIV services among PLHIV.

The study concluded that disrupted HIV continuum of care, diminished resources and ability to generate income, closure of organization providing HIV services, job loss, and closure of opportunities, as outcomes of COVID-19 containment policy measures,

significantly contributed to psychological distress among PLHIV. Moreover, the study concluded that being female, illiterate, living alone, married, challenges accessing HIV services amidst COVID-19, and alcohol use were factors associated with psychological distress among PLHIV.

The study concluded that PLHIV had knowledge on the symptoms of COVID-19, which included fever, cough, shortness of breath or difficulty breathing, fatigue, new loss of taste or smell, headache, muscle or body aches, sore throat, congestion or runny nose, diarrhea, and nausea or vomiting. Similarly, the study concluded that PLHIV had high knowledge on the factors associated with high risk of COVID-19, which included older age, pre-existing cardiovascular diseases, and respiratory disease. However, PLHIV had lower knowledge on poverty and crowding, pregnancy, physical inactivity, air pollution, alcohol and smoking as factors associated with high risk of being infected with COVID-19.

### **5.3 Recommendations**

1. On the impact of COVID-19 containment policy measures on psychological distress among PLHIV evidence revealed that the pandemic caused mental health problems like fear, panic and denial. In addition, strict enforcement of COVID-19 containment measures caused depression and anxiety arising from cessation of movement, lockdowns, loss of income due to closure of businesses, stay at home orders, closure of place of work, and layoffs. Since the pandemic is likely to remain for a protracted period, the study recommends that enhanced investment in psychological counselling be made at every health centre to provide support

mechanism to PLHIV during this period. This could be achieved through increased recruitment of counselling experts and training/retraining of medical personnel on counselling to build sufficient skills buffers. Moreover, there is need to leverage telecommunication technology by taking up telemedicine in counselling to ensure PLHIV who are unable to travel easily to a health facility because of COVID-19 receive psychological counselling remotely. Other psychological distress associated with loss of income following layoffs and business closures could be addressed by providing financial support to PLHIV through expansion of the Government safety net programmes for orphans and the elderly to include PLHIV.

2. On coping strategies used by people living with HIV to enable access to HIV services under the COVID-19 containment policy measures findings showed that PLHIV used various coping strategies, such as refilling antiretroviral drugs at the nearest clinics and maintaining 3-6 months doses to reduce clinic visits, to avoid interruptions in ART, which could have led to adverse long-term health effects. However, these coping strategies did not completely mitigate against access to HIV services. The study therefore recommends the Ministry of Health together with other actors to devise innovative service delivery channels to ensure minimal interruption of this essential service. These include strategies such as multi-month dispensing of ART, mailing, home delivery approach to ensure uninterrupted access to ARTs, and more importantly, integration of digital health into the delivery platforms. In addition, the Ministry of Health and other agencies involved in HIV programming should expand the facilities providing refill of

ARTs to include every health centre and selected private clinics to ensure wider availability and ease of access. This will circumvent the challenge of the need to travel long distances, particularly in rural and remote areas especially during the lockdown period.

3. On COVID-19 knowledge among people living with HIV, results showed that it is critical for individuals to possess knowledge on the symptoms and factors associated with high risk of COVID-19 as this informs the precautionary and preventive measures to take in order to control the spread of the disease. Findings showed that PLHIV are largely aware of COVID-19 and the associated symptoms. However, due to the evolving nature of the COVID-19 strains, symptoms keep changing, implying that at one point in time, PLHIV may not know the expanded symptoms of the disease. This therefore calls for continued sensitization campaigns by the Government on COVID-19. During such periods of pandemics associated with constantly evolving disease and heightened anxiety among the population, one may be tempted to seek information from any source. This therefore requires that information and sensitization campaigns be carried out through every available media including print, television, billboards and even social media. Social media, particularly appeals to younger populations and has the potential reach a wider scope within a short period. The utilization of social media to pass information will not only be effective but also help to stem misinformation and fake news that tend to spread on social media.



#### **5.4 Areas for Further Research**

Future scientific inquiry should seek to determine the overall impact of COVID-19 pandemic on other health conditions and patients apart from the HIV patients. Future studies should also investigate how COVID-19 containment measures affected other patients in other areas other than Ruaraka. The study further recommends research that explores the feasibility of other health service delivery methods, such as telemedicine and supply chains, that go down to the patient level through community health worker force training who can do home visits and deliver services to patients.

## REFERENCES

- Abiodun, O., Lawal, I., & Omokanye, C. (2018). PLHIV are more likely to have mental distress: evidence from a comparison of a cross-section of HIV and diabetes patients at Tertiary Hospitals in Nigeria. *AIDS care*, 30(8), 1050-1057. <https://doi.org/10.1080/09540121.2018.1441973>
- Ahmed, S. A. S., Ajisola, M., Azeem, K., Bakibinga, P., Chen, Y. F., Choudhury, N., & Yusuf, R. (2020). Impact of the societal response to COVID-19 on access to healthcare for non-COVID-19 health issues in slum communities of Bangladesh, Kenya, Nigeria and Pakistan: results of pre-COVID and COVID-19 lockdown stakeholder engagements. *BMJ Global Health*, 5(8), 30-42. <http://dx.doi.org/10.1136/bmjgh-2020-003042>
- Algoodkar, S., Kidangazhiathmana, A., Rejani, P. P., & Shaji, K. S. (2017). Prevalence and factors associated with depression among clinically stable people living with HIV/AIDS on antiretroviral therapy. *Indian journal of psychological medicine*, 39(6), 789-793. [https://doi.org/10.4103/IJPSYM.IJPSYM\\_364\\_17](https://doi.org/10.4103/IJPSYM.IJPSYM_364_17)
- Aluga, M. A. (2020). Coronavirus Disease 2019 (COVID-19) in Kenya: Preparedness, response and transmissibility. *Journal of Microbiology, Immunology and Infection*, 3(5), 671-673. <https://doi.org/10.1016/j.jmii.2020.04.011>
- Ambelu, A., Birhanu, Z., Yitayih, Y., Kebede, Y., Mecha, M., Abafita, J., Belay, A. & Fufa, D. (2021). Psychological distress during the COVID-19 pandemic in Ethiopia: an online cross-sectional study to identify the need for equal attention of intervention. *Annals of general psychiatry*, 20(1), 1-10. <https://doi.org/10.1186/s12991-021-00344-4>

- Amimo, F., Lambert, B., & Magit, A. (2020). What does the COVID-19 pandemic mean for HIV, tuberculosis, and malaria control? *Tropical Medicine and Health*, 48(1), 1-4. <https://doi.org/10.1186/s41182-020-00219-6>
- Avert (2021). HIV and AIDS in Kenya, Accessed at <https://www.avert.org/professionals/hiv-around-world/sub-saharan-africa/kenya>
- Barranco, R., & Ventura, F. (2020). Covid-19 and infection in health-care workers: an emerging problem. *Medico-Legal Journal*, 88(2), 65-66. <https://doi.org/10.1177%2F0025817220923694>
- Basha, E. A., Derseh, B. T., Haile, Y. G. E., & Tafere, G. (2019). Factors affecting psychological distress among people living with HIV/AIDS at selected hospitals of north Shewa zone, Amhara region, Ethiopia. *AIDS research and treatment*, 2019, Article 8329483 <https://doi.org/10.1155/2019/8329483>
- Battle, D. E. (2020). The Impact of COVID-19 on health care, education, and persons with disabilities in Kenya. Perspectives of the ASHA special interest groups, 5(6), 1793-1796. [https://doi.org/10.1044/2020\\_PERSP-20-00097](https://doi.org/10.1044/2020_PERSP-20-00097)
- Chenneville, T., Gabbidon, K., Hanson, P., & Holyfield, C. (2020). The impact of COVID-19 on HIV treatment and research: a call to action. *International journal of environmental research and public health*, 17(12), 4548. <https://dx.doi.org/10.3390%2Fijerph17124548>
- Chitangala, F., & Chiluba, B., & Munsaka, S. (2020). Fears and knowledge: Views on susceptibility of COVID-19 infection for People Living with HIV in Lusaka, Zambia, *Global Scientific Journals*, 8(4), 1197-1214. [https://www.globalscientificjournal.com/researchpaper/Fears\\_and\\_Knowledge\\_Vi](https://www.globalscientificjournal.com/researchpaper/Fears_and_Knowledge_Vi)

[ews on Susceptibility of COVID 19 Infection for People Living with HIV  
in Lusaka Zambia .pdf](#)

- Chowdhury, S. D., & Oommen, A. M. (2020). Epidemiology of COVID-19. *Journal of Digestive Endoscopy*, *11*(01), 03-07. <https://doi.org/10.1055/s-0040-1712187>
- Cunha, G. H. D., Galvão, M. T. G., Pinheiro, P. N. D. C., & Vieira, N. F. C. (2017). Health literacy for people living with HIV/Aids: An integrative review. *Revista Brasileira de Enfermagem*, *70*(1), 180-188. <https://doi.org/10.1590/0034-7167-2015-0052>
- Darcis, G., Vaira, D., & Moutschen, M. (2020). Impact of coronavirus pandemic and containment measures on HIV diagnosis. *Epidemiology & Infection*, *2*(4), 148. <https://doi.org/10.1017/S0950268820001867>
- Dean, E., Jones, A., Yu, H. P. M., Gosselink, R., & Skinner, M. (2020). Translating COVID-19 evidence to maximize physical therapists' impact and public health response. *Physical therapy*, *100*(9), 1458-1464. <https://doi.org/10.1093/ptj/pzaa115>
- Deng, G., Yin, M., Chen, X., & Zeng, F. (2020). Clinical determinants for fatality of 44,672 patients with COVID-19. *Critical Care*, *24*(1), 1-3. <https://doi.org/10.1186/s13054-020-02902-w>
- Friese, C. R., Veenema, T. G., Johnson, J. S., Jayaraman, S., Chang, J. C., & Clever, L. H. (2020). Respiratory protection considerations for healthcare workers during the COVID-19 Pandemic. *Health security*, *18*(3), 237-240. <https://doi.org/10.1089/hs.2020.0036>

- Grob, M., Herr, A., Hower, M., Kuhlmann, A., Mahlich, J., & Stoll, M. (2016). Unemployment, health, and education of HIV-infected males in Germany. *International journal of public health*, *61*(5), 593-602. <https://doi.org/10.1007/s00038-015-0750-3>
- Guo, W., Weng, H. L., Bai, H., Liu, J., Wei, X. N., Zhou, K., & Sande, A. (2020). Quick community survey on the impact of COVID-19 outbreak for the healthcare of people living with HIV. *Zhonghua liu Xing Bing xue za zhi= Zhonghua Liuxingbingxue Zazhi*, *41*(5), 663-667. <https://doi.org/10.3760/cma.j.cn112338-20200314-00345>
- Han, H. R., Kim, K., Murphy, J., Cudjoe, J., Wilson, P., Sharps, P., & Farley, J. E. (2018). Community health worker interventions to promote psychosocial outcomes among people living with HIV—A systematic review. *PloS one*, *13*(4), e0194928. <https://doi.org/10.1371/journal.pone.0194928>
- Hargreaves, J., Davey, C., Auerbach, J., Blanchard, J., Bond, V., Bonell, C., & Doyle, A. (2020). Three lessons for the COVID-19 response from pandemic HIV. *The Lancet HIV*, *7*(5), 309-311. [https://doi.org/10.1016/S2352-3018\(20\)30110-7](https://doi.org/10.1016/S2352-3018(20)30110-7)
- Ho, C. S., Chee, C. Y., & Ho, R. C. (2020). Mental health strategies to combat the psychological impact of COVID-19 beyond paranoia and panic. *Annals of the Academy of Medicine* *49*(1), 1-3. [https://annals.edu.sg/pdf/special/COM20043\\_HoCSH\\_2.pdf](https://annals.edu.sg/pdf/special/COM20043_HoCSH_2.pdf)
- Huang, Y., Luo, D., Chen, X., Zhang, D., Huang, Z., & Xiao, S. (2020). HIV-related stress experienced by newly diagnosed people living with HIV in China: A 1-year

longitudinal study. *International Journal of Environmental Research and Public Health*, 17(8), 2681. <https://doi.org/10.3390/ijerph17082681>

International Labour Organization. (2020). *COVID-19 crisis and the informal economy Immediate responses and policy challenges*, Geneva, Switzerland [https://www.ilo.org/wcmsp5/groups/public/---ed\\_protect/---protrav/---travail/documents/briefingnote/wcms\\_743623.pdf](https://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/briefingnote/wcms_743623.pdf)

Isaac, S., & Michael, W. B. (1995). *Handbook in research and evaluation: A collection of principles, methods, and strategies useful in the planning, design, and evaluation of studies in education and the behavioral sciences*. Edits Publishers.

Jiang, H., Zhou, Y., & Tang, W. (2020). Maintaining HIV care during the COVID-19 pandemic. *The Lancet HIV*, 7(5), 308-309. [https://doi.org/10.1016/S2352-3018\(20\)30105-3](https://doi.org/10.1016/S2352-3018(20)30105-3)

John Hopkins University (JHU) (2020, May 26). *JHU Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at John Hopkins University*. <https://www.arcgis.com/apps/opsdashboard/index.html#/bda7594740fd40299423467b48e9ecf6>

Joint United Nations Programme on HIV/AIDS. (2019). *Global HIV and AIDS statistics*. [https://www.unaids.org/sites/default/files/media\\_asset/2019-UNAIDS-data\\_en.pdf](https://www.unaids.org/sites/default/files/media_asset/2019-UNAIDS-data_en.pdf)

Joint United Nations Programme on HIV/AIDS. (2020a). *COVID-19 and HIV: 1 moment 2 epidemics 3 opportunities: How to seize the moment to learn, leverage and build a new way forward for everyone's health and rights*.

[https://www.unaids.org/sites/default/files/media\\_asset/20200909\\_Lessons-HIV-COVID19.pdf](https://www.unaids.org/sites/default/files/media_asset/20200909_Lessons-HIV-COVID19.pdf)

Joint United Nations Programme on HIV/AIDS. (2020b). *COVID-19 and HIV progress report 2020*. [https://www.unaids.org/sites/default/files/media\\_asset/COVID-19\\_HIV\\_EN.pdf](https://www.unaids.org/sites/default/files/media_asset/COVID-19_HIV_EN.pdf)

Karijo, E., Wamugi, S., Lemanyishoe, S., Njuki, J., Boit, F., Kibui, V., & Abuya, T. (2021). Knowledge, attitudes, practices, and the effects of COVID-19 among the youth in Kenya. *BMC Public Health*, *21*(1), 1-13. <https://doi.org/10.1186/s12889-021-11067-2>

Khan, M., Adil, S. F., Alkhatlan, H. Z., Tahir, M. N., Saif, S., Khan, M., & Khan, S. T. (2021). COVID-19: A global challenge with old history, epidemiology and progress so far. *Molecules*, *26*(1), 39. <https://doi.org/10.3390/molecules26010039>

Kinyanda, E., Hoskins, S., Nakku, J., Nawaz, S., & Patel, V. (2011). Prevalence and risk factors of major depressive disorder in HIV/AIDS as seen in semi-urban Entebbe district, Uganda. *BMC psychiatry*, *11*(1), 1-9. <https://doi.org/10.1186/1471-244X-11-205>

Li, L., Wu, S., Wu, Z., Sun, S., Cui, H., & Jia, M. (2006). Understanding family support for people living with HIV/AIDS in Yunnan, China. *AIDS and Behavior*, *10*(5), 509-517. <https://doi.org/10.1007/s10461-006-9071-0>

Li, X., Xu, S., Yu, M., Wang, K., Tao, Y., Zhou, Y., & Zhao, J. (2020). Risk factors for severity and mortality in adult COVID-19 inpatients in Wuhan. *Journal of Allergy and Clinical Immunology*, *146*(1), 110-118. <https://doi.org/10.1016/j.jaci.2020.04.006>

- Liu, T., Liang, W., Zhong, H., He, J., Chen, Z., He, G., Song, T., Chen, S., Wang, P., Li, J., Lan, Y., Cheng, M., Huang, J., Niu, J., Xia, L., Xiao, J., Hu, J., Lin, L., Huang, Q., Rong, Z., Deng, ... Ma, W. (2020). Risk factors associated with COVID-19 infection: a retrospective cohort study based on contacts tracing. *Emerging microbes & infections*, 9(1), 1546-1553. <https://doi.org/10.1080/22221751.2020.1787799>
- Mao, Y., Qiao, S., Li, X., Zhao, Q., Zhou, Y., & Shen, Z. (2019). Depression, social support, and adherence to antiretroviral therapy among people living with HIV in Guangxi, China: A longitudinal study. *AIDS Education and Prevention*, 31(1), 38-50. <https://doi.org/10.1521/aeap.2019.31.1.38>
- Ministry of Health, Kenya. (2020). *Interim Guidelines on Management of Covid-19 in Kenya: COVID-19 Infection, Prevention and Control (IPC) and Case Management*. [https://www.health.go.ke/wp-content/uploads/2020/06/Updated-Case-Management-Guidelines-26\\_03\\_20-1.pdf](https://www.health.go.ke/wp-content/uploads/2020/06/Updated-Case-Management-Guidelines-26_03_20-1.pdf)
- Ministry of Health, Kenya (2021). *Guidelines on case management of COVID-19 in Kenya*. <https://www.health.go.ke/wp-content/uploads/2021/10/Final-guidelines-on-the-Management-of-Covid-19-in-Kenya-2021-Edition.pdf>
- National AIDS and STIs Control Programme. (2020). *Kenya Population Based HIV Impact Assessment (KENPHIA): 2018 Report NASCOP: Nairobi, Kenya, 2020*. <https://www.health.go.ke/wp-content/uploads/2020/02/KENPHIA-2018-PREL-REP-2020-HR3-final.pdf>
- Nyoni, T., & Okumu, M. (2020). COVID-19-Compliant Strategies for Supporting Treatment Adherence Among People Living with HIV in Sub-Saharan



Africa. *AIDS and Behavior*, 24(9), 2473-2476. <https://doi.org/10.1007/s10461-020-02888-0>

Obadeji, A., Ogunlesi, A. O., & Adebowale, T. O. (2014). Prevalence and predictors of depression in people living with HIV/AIDS attending an outpatient clinic in Nigeria. *Iranian journal of psychiatry and behavioral sciences*, 8(1), 26. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4078690/>

Perazzo, J. D., Currie, J., Horvat Davey, C., Lambert, J., & Webel, A. R. (2020). Depression and social capital in people living with HIV. *Journal of psychiatric and mental health nursing*, 27(1), 54-61. <https://doi.org/10.1111/jpm.12552>

Pinto, R. M., & Park, S. (2020). COVID-19 Pandemic disrupts HIV continuum of care and prevention: Implications for research and practice concerning community-based organizations and frontline providers. *AIDS and Behavior*, 24(9), 2486-2489. <https://doi.org/10.1007/s10461-020-02893-3>

Prabhu, S., Poongulali, S., & Kumarasamy, N. (2020). Impact of COVID-19 on people with HIV: A Review. *Journal of virus eradication*, 6(4), 100019. <https://doi.org/10.1016/j.jve.2020.100019>

Quaife, M., Van Zandvoort, K., Gimma, A., Shah, K., McCreesh, N., Prem, K., & Austrian, K. (2020). The impact of COVID-19 control measures on social contacts and transmission in Kenyan informal settlements. *BMC medicine*, 18(1), 1-11. <https://doi.org/10.1186/s12916-020-01779-4>

Roberton, T., Carter, E. D., Chou, V. B., Stegmuller, A. R., Jackson, B. D., Tam, Y., Sawadogo, T., & Walker, N. (2020). Early estimates of the indirect effects of the COVID-19 pandemic on maternal and child mortality in low-income and middle-

- income countries: a modelling study. *The Lancet Global Health*, 8(7), 901-908.  
[https://doi.org/10.1016/S2214-109X\(20\)30229-1](https://doi.org/10.1016/S2214-109X(20)30229-1)
- Roy, D., Tripathy, S., Kar, S. K., Sharma, N., Verma, S. K., & Kaushal, V. (2020). Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian Journal of Psychiatry*, 51, 102083.  
<https://doi.org/10.1016/j.ajp.2020.102083>
- Santos, G., Ackerman, B., Rao, A., Wallach, S., Ayala, G., Lamontage, E., Garner, A., Holloway, I. W., Arreola, S., Silenzio, V., Strömdahl, S., Yu, L., Strong, C., Adamson, T., Yakusik, A., Doan, T. T., Huang, P., Cerasuolo, D., Bishop, A., Howell, S. (2020). Economic, Mental Health, HIV Prevention and HIV Treatment Impacts of COVID-19 and the COVID-19 response on a Global Sample of Cisgender Gay Men and Other Men who have sex with Men. *AIDS and Behavior* 25,311–321 <https://doi.org/10.1007/s10461-020-02969-0>
- Schadé, A., van Grootheest, G., & Smit, J. H. (2013). HIV-infected mental health patients: characteristics and comparison with HIV-infected patients from the general population and non-infected mental health patients. *Bmc Psychiatry*, 13(1), 1-10. <https://doi.org/10.1186/1471-244X-13-35>
- Sekaran, U. (2006). *Research methods for business: A skill building approach*. John Wiley & Sons.
- Shiau, S., Krause, K. D., Valera, P., Swaminathan, S., & Halkitis, P. N. (2020). The burden of COVID-19 in people living with HIV: a syndemic perspective. *AIDS and Behavior*, 24(8), 2244-2249. <https://doi.org/10.1007/s10461-020-02871-9>

- Silva, L. M. S. D., Moura, M. A. V., & Pereira, M. L. D. (2013). The daily life of women after HIV/AIDS infection: guidelines for nursing care. *Texto & Contexto-Enfermagem*, 22(2), 335-342. <https://doi.org/10.1590/S0104-07072013000200009>
- Silva, R. T. S., Silva, R. A. R. D., Rodrigues, I. D. C. V., Souza Neto, V. L. D., Silva, B. C. O. D., & Souza, F. M. D. L. C. (2018). Coping strategies of people living with AIDS in face of the disease. *Revista latino-americana de enfermagem*, 26(3), 371-391. <https://doi.org/10.1590/1518-8345.2284.2985>
- Sochas, L., Channon, A. A., & Nam, S. (2017). Counting indirect crisis-related deaths in the context of a low-resilience health system: the case of maternal and neonatal health during the Ebola epidemic in Sierra Leone. *Health Policy and Planning*, 32(3), 332-339. <https://doi.org/10.1093/heapol/czx108>
- Sun, S., Hou, J., Chen, Y., Lu, Y., Brown, L., & Operario, D. (2020). Challenges to HIV care and psychological health during the COVID-19 Pandemic among people living with HIV in China. *AIDS and Behavior*, 24(10), 2764-2765. <https://dx.doi.org/10.1007%2Fs10461-020-02903-4>
- Sun, Y., Zhan, Y., Li, H., Yuan, T., Gao, Y., Liang, B., & Zou, H. (2021). Stakeholder efforts to mitigate antiretroviral therapy interruption among people living with HIV during the COVID-19 pandemic in China: A qualitative study. *Journal of the International AIDS Society*, 24(9), 1-10. <https://doi.org/10.1002/jia2.25781>
- Tchankoni, M. K., Gbeasor-Komlanvi, F. A., Bitty-Anderson, A. M., Sewu, E. K., Zida-Compaore, W. I. C., Alioum, A., & Ekouevi, D. K. (2020). Prevalence and factors associated with psychological distress among key populations in Togo. *PLoS one*, 15(4), 17-26. <https://doi.org/10.1371/journal.pone.0231726>

- Tesfaye, S. H., & Bune, G. T. (2014). Generalized psychological distress among HIV-infected patients enrolled in antiretroviral treatment in Dilla University Hospital, Gedeo zone, Ethiopia. *Global Health Action*, 7(1), 23882. <https://doi.org/10.3402/gha.v7.23882>
- Theresa, H., Bateganya, M., Toyo, O., Francis, C., Shrestha, B., Philakone, P., & Mahlerg, H. (2021). How Home Delivery of Antiretroviral Drugs Ensured Uninterrupted HIV Treatment During COVID-19: Experiences From Laos, Indonesia, Nepal, and Nigeria. *Global Health*, 9(4), 1. <https://doi.org/10.9745/GHSP-D-21-00168>
- Wang, Y., Wang, Z., Jia, M., Liang, A., Yuan, D., Sun, Z., Feng, G., Ying, W., Yong, C., & Zhang, Z. (2017). Association between a syndemic of psychosocial problems and unprotected anal intercourse among men who have sex with men in Shanghai, China. *BMC Infectious Diseases*, 17(1), 46. <https://doi.org/10.1186/s12879-016-2132-8>
- Williamson, E. J., Walker, A. J., Bhaskaran, K., Bacon, S., Bates, C., Morton, C. E., Curtis, H.J., Mehrkar, A., Inglesby, P., & Cockburn, J. (2020). Factors associated with COVID-19-related death. *Nature*, 584(7821), 430-436. <https://doi.org/10.1038/s41586-020-2521-4>
- Winwood, J. J., Fitzgerald, L., Gardiner, B., Hannan, K., Howard, C., & Mutch, A. (2021). Exploring the Social Impacts of the COVID-19 Pandemic on People Living with HIV (PLHIV): A Scoping Review. *AIDS and Behavior*, 25(12), 4125-4140. <https://doi.org/10.1007/s10461-021-03300-1>

- World Health Organization & Joint United Nations Programme on HIV/AIDS. (2020 May,). *The cost of inaction: COVID-19-related service disruptions could cause hundreds of thousands of extra deaths from HIV.* <https://www.who.int/news/item/11-05-2020-the-cost-of-inaction-covid-19-related-service-disruptions-could-cause-hundreds-of-thousands-of-extra-deaths-from-hiv>
- World Health Organization. (2020). *Coronavirus disease 2019 (COVID-19): Situation reports: Weekly Epidemiological Update and Weekly Operational Update.* <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
- Yang, X., Zeng, C., Tam, C. C., Qiao, S., Li, X., Shen, Z., & Zhou, Y. (2021). HIV service interruptions during the COVID-19 pandemic in China: the role of HIV service challenges and institutional response from healthcare professional's perspective. *AIDS and Behavior*, 3(8) 1-9.. <https://doi.org/10.1007/s10461-021-03484-6>
- Zhai, P., Ding, Y., Wu, X., Long, J., Zhong, Y., & Li, Y. (2020). The epidemiology, diagnosis and treatment of COVID-19. *International journal of antimicrobial agents*, 55(5), 105955. <https://doi.org/10.1016/j.ijantimicag.2020.105955>
- Zhang, J., Wang, X., Jia, X., Li, J., Hu, K., Chen, G., & Dong, W. (2020). Risk factors for disease severity, unimprovement, and mortality in COVID-19 patients in Wuhan, China. *Clinical Microbiology and Infection*, 26(6), 767-772. <https://doi.org/10.1016/j.cmi.2020.04.012>



## APPENDICES

### **Appendix I: Letter of introduction**

Dear Respondent,

I am in the process of carrying out a study titled, “**COVID- 19 containment policy measures and their effect on access to HIV services for persons living with HIV in Ruaraka Sub-County.**” This thesis is part of a requirement for the Award of the Degree of Masters of Science in Public Health of Kenya Methodist University.

For the purpose of gathering data to address the research objectives and benefit from your vast knowledge/experience, you have been chosen to take part in this study. I have attached a questionnaire, which requires you to provide honest and accurate answers to the questions outlined. Confidentiality as an ethical requirement in data collection shall apply accordingly.

Your participation is highly valued

Yours sincerely,

**Purity Jerop Chirchir**

## Appendix II: Approval of Research Proposal Letter



KENYA METHODIST UNIVERSITY

P. O. BOX 267 MERU - 60200, KENYA  
TEL: 254-064-30301/31229/30367/31171

FAX: 254-64-30162  
EMAIL: [serc@kemu.ac.ke](mailto:serc@kemu.ac.ke)

December 14, 2020

KeMU/SERC/HND/43/2020

Purity Jerop Chirchir  
Kenya Methodist University

Dear Purity,

**SUBJECT: COVID-19 CONTAINMENT POLICY MEASURES AND THEIR EFFECT ON ACCESS TO HIV SERVICES FOR PERSONS LIVING WITH HIV IN RUARAKA SUB COUNTY**

This is to inform you that Kenya Methodist University Scientific Ethics and Review Committee has reviewed and approved your above research proposal. Your application approval number is KeMU/SERC/HND/43/2020. The approval period is 14<sup>th</sup> December 2020 – 14<sup>th</sup> December 2021.

This approval is subject to compliance with the following requirements

- I. Only approved documents including (informed consents, study instruments, MTA) will be used.
- II. All changes including (amendments, deviations, and violations) are submitted for review and approval by Kenya Methodist University Scientific Ethics and Review committee.
- III. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to KeMU SERC within 72 hours of notification.
- IV. Any changes, anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to KeMU SERC within 72 hours.
- V. Clearance for export of biological specimens must be obtained from relevant institutions.



## Appendix III: Research Authorization 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

---

January 21, 2021

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

Dear sir/ Madam,

RE: PURITY JEROP CHIRCHIR (PHT-3-1845-1/2016)

This is to confirm that the above named is a bona fide student of Kenya Methodist University, Department of Public Health, undertaking a Degree of Master of Public Health. She is conducting research on 'Covid-19 containment policy measures and their effect on access to HIV services for persons living with HIV in Ruaraka Sub 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: Questionnaire for People Living with HIV

The purpose of this questionnaire is to enhance gathering of data about COVID-19 containment policy measures and their effect on access to HIV services for persons living with HIV in Ruaraka Sub-County. Please provide honest responses by placing a tick (✓) on your preferred option.

### Consent

Please tick in the appropriate box below

I have agreed to participate in the study voluntarily

I decline to participate in the study

### Section A: Socio-Demographic Data

1. What is your age in years?

1. Below 18      [ ]

2. 25-34        [ ]

3. 35-44        [ ]

4. Above 45     [ ]

2. What is your gender?

1. Male        [ ]

2. Female      [ ]

3. What is your marital status?

1. Married      [ ]

2. Single        [ ]

3. Separated    [ ]

4. Divorced     [ ]

5. Widowed     [ ]

4. What is your religion?

1. Orthodox    [ ]

2. Muslim       [ ]

- 3. Protestant [ ]
- 4. Others (Specify) \_\_\_\_\_

5. How many children do you have?  
\_\_\_\_\_

6. What is your living condition?
- 1. Living with family [ ]
  - 2. Living alone [ ]
  - 3. Other (Specify) \_\_\_\_\_

7. What is your educational status?
- 1. Illiterate [ ]
  - 2. Literate [ ]

8. What is your occupation?
- 1. Housewife [ ]
  - 2. Daily laborer [ ]
  - 3. Unemployed [ ]
  - 4. Civil Servant [ ]
  - 5. Merchant/Business [ ]
  - 6. Other (Specify) \_\_\_\_\_

9. What is your monthly income in Kenyan Shillings?  
\_\_\_\_\_

**SECTION B: Access to HIV Services**

10. Have you experienced any challenges in accessing HIV services since the outbreak of the COVID-19 pandemic in the country?

- 1. Yes [ ]
- 2. No [ ]

11. If **YES** above (10), have the following aspects affected your routine access to HIV services? (For each statement, please indicate the extent you agree with it where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree).

	<b>COVID-19 Containment Measures</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i.	Closure of public transport					
ii.	Cessation of movement					
iii.	Stay at home requirement					
iv.	Curfew					
v.	Public transportation limitation on passenger capacity					
vi.	Quarantine					
vi.	Reduction of service hours in clinics					
vii.	Others (Please Specify)_____					

### **SECTION C: Coping Strategies Used by People Living With HIV**

12. Have you had interrupted supply of ART after COVID-19 containment measures were introduced in the country? (If No, skip question 16)

1. Yes

2. No

13. If YES above (15), how have you been able to maintain continued access to ART?

(More than one response possible)

1. Refill antiretroviral drugs at the nearest clinics

2. Maintain enrolment at the present treatment centre to continue ART

3. Maintain 3-6 months' doses to reduce clinic visits

4. ART distribution through community-based delivery

5. Other (Specify) \_\_\_\_\_

### **SECTION D: Psychological Distress**

**14.** To determine psychological distress, use a Self-Reporting Questionnaire (SRQ-20) contained in appendix III.

15. How do the following outcomes of COVID-19 containment policy measures contribute to psychological distress? For each statement, please indicate the extent you agree with it where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree).

	<b>Outcomes of Covid-19 containment policy measures</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i.	Disrupted HIV continuum of care					
ii.	Diminished resources and ability to generate income					
iii.	Closure of organization providing HIV services					
iv.	Job loss					
v.	Closure of opportunities in the non-formal education					
vi.	Others (Please Specify) _____					

16. Have you been using alcohol since the outbreak of COVID-19 pandemic?

1. Yes [ ]

2. No [ ]

#### **SECTION D: Knowledge of COVID-19 among PLHIV**

17. The following statements describe symptoms of COVID-19; please respond appropriately by placing a tick in the box.

	<b>Symptom</b>	<b>True</b>	<b>False</b>
i.	Fever or chills		
ii.	Cough		
iii.	Shortness of breath or difficulty breathing		
iv.	Fatigue		
v.	New loss of taste or smell		
vi.	Headache		
vii.	Muscle or body aches		
viii.	Sore throat		
ix.	Congestion or runny nose		
x.	Diarrhea		
xi.	Nausea or vomiting		

	Other (Specify) _____		
--	-----------------------	--	--

**18.** The following factors are associated with high risk of COVID-19; please respond appropriately by ticking in the box. For each factor, please indicate the extent you agree with it, where 1=Strongly Disagree; 2=Disagree; 3=Neutral; 4=Agree; 5=Strongly Agree.

	<b>Factors</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
i	Older age					
ii	Pre-existing cardiovascular diseases, such as hypertension					
iii	Poverty and crowding					
iv	Pregnancy					
v	Physical inactivity					
vi	Air pollution					
vii	Respiratory Disease					
viii	Alcohol and smoking					
	Other (Specify) _____					

**\*\*END\***

**Appendix VI: Self-Reporting Questionnaire-20 (SRQ-20)**

1. Do you often have headaches? yes/no
2. Is your appetite poor? yes/no
3. Do you sleep badly? yes/no
4. Are you easily frightened? yes/no
5. Do your hands shake? yes/no
6. Do you feel nervous, tense or worried? yes/no
7. Is your digestion poor? yes/no
8. Do you have trouble thinking clearly? yes/no
9. Do you feel unhappy? yes/no
10. Do you cry more than usual? yes/no
11. Do you find it difficult to enjoy your daily activities? yes/no
12. Do you find it difficult to make decisions? yes/no
13. Is your daily work suffering? yes/no
14. Are you unable to play a useful part in life? yes/no
15. Have you lost interest in things? yes/no
16. Do you feel that you are a worthless person? yes/no
17. Has the thought of ending your life been on your mind? yes/no
18. Do you feel tired all the time? yes/no
19. Do you have uncomfortable feelings in your stomach? yes/no
20. Are you easily tired? yes/no

**\*END\***