SAME-DAY ANTIRETROVIRAL THERAPY INITIATION AND ITS ASSOCIATION WITH VIRAL SUPPRESSION AND RETENTION IN HIV CARE IN ETHIOPIA

by

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DECLARATION

I, **Kidanu Hurisa Chachu**, declare that "**SAME-DAY ANTIRETROVIRAL THERAPY INITIATION AND ITS ASSOCIATION WITH VIRAL SUPPRESSION AND RETENTION IN HIV CARE IN ETHIOPIA"**, is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references, and that this work has not been submitted previously for any other degree at any other higher education institution.

Signed: _____ **Date:** _05 March 2024

Kidanu Hurisa Chachu

DEDICATION

This thesis is dedicated posthumously to the memory of my parents, Mr Hurisa Chachu and Mrs Like Bedada, who have supported me in every step of the way on this journey of liberation of the mind.

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SAME-DAY ANTIRETROVIRAL THERAPY INITIATION AND ITS ASSOCIATION WITH VIRAL SUPPRESSION AND RETENTION IN HIV CARE IN ETHIOPIA

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ABSTRACT

. Same-day antiretroviral therapy (ART) initiation has emerged as a promising strategy to enhance treatment outcomes by reducing the time between HIV diagnosis and the commencement of ART. However, the impact of same-day ART initiation on viral suppression and patient retention in HIV care in Ethiopia has not been thoroughly evaluated.

The purpose of this study was to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia This research aims to fill the existing knowledge gap by examining the status of same-day ART initiation and its impact on viral suppression and retention in HIV care in Ethiopia. Furthermore, based on the findings and results of the study, the researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms.

The setting was two specific health care facilities in Adama and Bishoftu towns in the East Shewa zone of Ethiopia. A three-phased exploratory sequential mixed methods design was adopted by integrating qualitative and quantitative methodologies in a sequential process. Phase 1 was qualitative and its target population were patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019, physicians, nurses, case managers, and adherence supporters working in the ART clinics of two selected healthcare facilities. Sampling was non-probability purposive. The sample comprised of 30 participants and was further determined by data saturation. The semi-structured interview guides and a cell phone were used as data collection instruments. Phase 1 was employed to explore details on the benefits and challenges associated with same-day ART initiation. The insights gleaned from this phase were subsequently utilised to refine

the data collection tools for Phase 2. Phase 2 was quantitative, and data was collected from patients' clinical records in the smart care database of the selected healthcare facilities' ART clinic by means of a checklist. Simple random sampling was used. The sample consisted of 332 clinical records. Phase 3 focused on strategies development, which was validated by health experts. In Phase 1, data was analysed thematically, and verbatim transcriptions were conducted by using Tesch's eight-step analytic approach. The quantitative data in Phase 2 were analysed using the Statistical Package for the Social Sciences (SPSS), Version 28.

The findings identified the benefits of same-day ART initiation, the challenges, current approaches, and future strategies to be implemented for quality service provision and meeting global targets in HIV care and treatment programmes. Twenty-one themes emerged from the analysis of the data from Phase 1. The quantitative results showed that the retention rate in HIV care and treatment was 59%. Viral suppression rates at 6, 12, and 24 months were 93%, 95%, and 86%, respectively, indicating progress towards the global target of 95% by 2030. In Phase 3, a modified Delphi Technique was used. The strategies produced three thematic areas and sixteen strategic key areas. After validation, the strategies were modified, and a total of fifteen strategies were adopted as the final outcomes. This study contributed to enhancing the understanding of same-day ART initiation, highlighting its benefits, challenges, and implications for HIV care in Ethiopia.

The recommendations were aimed at emphasising a multifaceted and patient-centric approach to optimising the implementation of same-day ART initiation for sustained improvements in HIV care outcomes in pursuance of the 2030 global targets. The researcher intends to share the recommendations for future research with the Ministry of Health, regional health bureaus, town/zonal health departments, healthcare facility heads, healthcare providers, patients, and the communities in Ethiopia.

Key words: anti-retroviral treatment, adherence, AIDS, Delphi technique, healthcare provider, HIV, lost to follow-up, retention, same-day ART initiation, strategy, viral suppression.

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AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
AS	Adherence Supporter
ARV	Antiretroviral
BMI	Body Mass Index
CDC	Center for Disease Control
CMs	Case Managers
CPT	Cotrimoxazole
DDRH	Dire Dawa Regional Health Bureau
DHIS2	District Health Information System 2
DSD	Differentiated Service Delivery
DTG	Dolutegravir
EDHS	Ethiopian Demographic and Health Survey
EMR	Electronic Medical Record
EFMOH	Ethiopian Federal Ministry of Health
EPHI	Ethiopian Public Health Institute
FHAPCO	Federal HIV/AIDS Prevention and Control Office
FMoH	Federal Ministry of Health
FSW	Female Sex Workers
HBM	Health Belief Model
HCP	Healthcare Provider
HIV	Human Immunodeficiency Virus
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HIVST	HIV self-tested
HMIS	Health Management Information System
HR	Human Resources
HRHB	Harari Regional Health Bureau
HSRC	Human Sciences Research Council
ICT	Index Case Testing
ID	Infectious Disease
INH	Isoniazid
INSTIs	Integrase Strand Transfer Inhibitors
IPD	Inpatient Department

IRB	Institutional Review Board
IT	Information Technology
KPIs	Key Performance Indicators
LTFU	Lost to Follow-Up
M&E	Monitoring and Evaluation
MD	Medical Doctor
MDT	Multidrug Therapy
MoH	Ministry of Health
MSM	Men Sex with Men
MUAC	Mid-Upper Arm Circumference
NGOs	Non-Governmental Organisations
NNRTIs	Non-Nucleoside Reverse Transcriptase Inhibitors
NRTIs,	Nucleoside/nucleotide Reverse Transcriptase Inhibitors
OI	Opportunistic Infection
OPD	Out Patients Department
ORHB	Oromia Regional Health Bureau
PEPFAR	President's Emergency Plan for AIDS Relief
PhD	Doctor of Philosophy
PITC	Provider-Initiated Testing and Counselling
PLHIV	People Living with HIV
PIs	Protease Inhibitors
PMTCT	Prevention of Mother-to-Child Transmission
PrEP	Post Exposure Prophylaxis
RNA	Ribonucleic Acid
RR	Relative Risk
SDI	Same-day Initiation
SDI-ART	Same-Day Initiation of Antiretroviral Therapy
SDP	Service Delivery Point
SMS	Short Message Service
SPSS	Statistical Package for the Social Sciences
SRHB	Sidama Regional Health Bureau
STIs	Sexually Transmitted Diseases
TB	Tuberculosis
TND	Not Detected
TPB	Theory of Planned Behaviour

TRA	Theory of Reasoned Action
TV	Television
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNISA	University of South Africa
UTT	Universal Test and Treat
VCT	Voluntary Counselling and Testing
VL	Viral Load
WHO	World Health Organization

CHAPTER 1
ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The first evidence of the human immunodeficiency virus (HIV) epidemic in Ethiopia was detected in 1984 (Federal Ministry of Health Ethiopia 2018:1). Since then, millions of Ethiopians have fallen prey to HIV, which has also left behind hundreds of thousands of orphans. The government of Ethiopia took several steps towards preventing further disease spread and increasing accessibility to HIV prevention, care, treatment, and support for people living with HIV. The Federal Ministry of Health Ethiopia (2018:1) reported that approximately 414,854 adults and 21,146 children below the age of 15 years took antiretroviral (ARV) drugs in Ethiopia in 2017. According to the country factsheets of UNAIDS, the number of people receiving ART in Ethiopia was 500,000 in 2022 (UNAIDS Ethiopian country factsheets 2022:2).

The consolidated guidelines of the World Health Organization (WHO) recommended the use of antiretroviral drugs for treating and preventing HIV infection and the rapid antiretroviral therapy (ART) initiation recommendation (World Health Organization 2016:21). These recommendations support initiatives and measures such as early ART initiation, including same-day ART initiation regardless of WHO staging. It is in this context that Ethiopia developed consolidated national guidelines for protracted HIV prevention, care, and treatment and started to implement same-day ART initiation in October 2017 (Federal Ministry of Health Ethiopia 2018:43). According to the Federal Ministry of Health Ethiopia (2018:49), it is critical for people living with HIV to initiate ART as early as possible, including same-day ART initiation. This will reduce the time between the diagnosis of HIV and ART initiation, thereby significantly reducing mortality and morbidity linked to HIV, as well as forward transmission of HIV, including mother-to-child transmission (Federal Ministry of Health Ethiopia 2018:1).

The HIV epidemic in Ethiopia is heterogeneous by gender, geographic area, and population group. Furthermore, HIV prevalence is seven times higher in urban areas, at 2.9%, as opposed to 0.4% among both men and women in rural areas. In addition, HIV prevalence among women in urban areas is 3.6%, as opposed to 0.6% among rural women. Seven (7) out of the nine (9) regional states and two city administrations have HIV prevalence rates above 1%. Identification of HIV prevalence by region shows that it

is highest in Gambella (4.8%), followed by Addis Ababa (3.4%), Dire Dawa (2.5%), and Harari (2.4%) (Federal HIV/AIDS Prevention and Control Office Road Map 2018:3).

The outcomes of some recent randomised trials have shown that rapid ART initiation, including same-day initiation, could improve programme outcomes, especially by lessening lost to care in the pre-ART period (Amanyire, Semitala, Namusobya, Katuramu, Kampiire, Wallenta, Charlebois, Camlin, Kahn, Chang, Glidden, Kamya, Havlir & Geng 2016:8). However, evidence from programme settings suggests that rapid ART initiation may result in optimised lost to follow-up after ART initiation due to insufficient time to accept and disclose HIV status and prepare for lifelong treatment (Helova, Akama, Bukusi, Musoke, Nalwa, Odeny, Onono, Spangler, Turan, Wanga & Abuogi 2016: 287).

This study's purpose was to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms. The results of this study will assist healthcare providers, programme managers, and policy designers at the federal level to understand and address factors linked with same-day ART initiation and tracing patients lost to follow-up from HIV care in Ethiopia's healthcare services.

1.2 BACKGROUND TO THE PROBLEM

The Joint United Nations Programme on HIV/AIDS has set 90-90-90 targets for the purpose of eradicating the HIV epidemic by 2030. The targets are focused on ensuring that 90% of HIV-infected persons are cognisant of their status, 90% initiate ART, and that 90% achieve virologic suppression by the year 2020 (Joint United Nations Programme on HIV/AIDS (UNAIDS) 2017:10). When these three-90 targets have been accomplished, at least 73% of all people living with HIV globally will be virally suppressed (UNAIDS 2017:10). Ethiopia is one of the Sub-Saharan African countries that has committed to reaching 90% of HIV-positive people, initiating ART for 90% of those reached, virally suppressing 90% of those on ART by 2020, and ending the HIV epidemic by 2030. To achieve the three 90's by 2020 and end the HIV epidemic by 2030, Ethiopia is implementing same-day ART initiation and differentiated service delivery (DSD) (Federal Ministry of Health Ethiopia 2018:125). In Ethiopia, 79% of people living with HIV (PLHIV) were aware of their status, and 71% of eligible people living with HIV are on ART, while

87% of those on ART had attained viral suppression by May 2018. However, the viral load service coverage is 51% (Federal HIV Prevention and Control Office (FHAPCO) 2018:7). Modelling implies that accomplishing these targets by 2020 would enable the eradication of the AIDS epidemic by 2030, which will reciprocate the generation of fundamental economic and health benefits.

In 2015, the WHO updated its guidelines and recommended ART for all persons living with HIV on account of the evidence that previous treatment decreases transmission and also improves outcomes. The achievement of these goals, the World Health Organization has enhanced the achievement of its targets and goals by consolidating its guidelines concerning the use of antiretroviral drugs for treating and preventing HIV infections. The guidelines propose the prompt linking of patients to HIV services, initiated on ART, and retained in lifelong HIV care (World Health Organization 2016:19-20). The consolidated 2017 WHO guidelines further recommended that ART initiation ought to be provided on the same-day to any person who is ready to start ART (World Health Organization 2017:19-20).

According to UNAIDS (2017:11), one of the most critical pillars for successfully achieving the second 90% target entails the implementation of same-day ART initiation (UNAIDS 2017:11). Only a few studies in African countries have shown same-day ART initiation in pregnant women and adults over the age of 17 (Langwenya, Phillips, Brittain, Zerbe, Abrams & Myer 2018:3). A randomised controlled trial study conducted on same-day ART therapy in rural Lesotho shows that retention within 90 days from ART initiation was 68.6% in the same-day ART started group as compared to 43.1% in the non-same-day ART started group. This clearly indicated that there was an absolute difference of 25.6% (Labhardt, Ringera, Lejone, Klimkait, Muhairwe, Amstutz & Glass 2018:1107).

According to Labhardt et al (2018:1107), 42.3% of participants reached recorded viral suppression (<1000 copies/mL) from 11 within 14 months from enrolment. The same-day ART initiated group was 50.4% as compared to the non-same-day ART initiated group, which was 34.3%. This also indicated an absolute difference of 16% among the two groups. Ethiopia started to implement same-day ART initiation as a new initiative for all patients ready to start ART since October 2017, following WHO recommendations and developed consolidated ART guidelines as a guiding principle (Federal Ministry of Health Ethiopia 2018:3). In addition, Ethiopia has witnessed a marked reduction in HIV mortality

and morbidity, while also reducing new HIV infections by 90% and AIDS-related mortality among adults by more than 50% through its leadership commitment and country ownership of the HIV response programme (Federal HIV/AIDS Prevention and Control Office (FHAPCO) 2018:7). According to the FHAPCO (2018:7), the responses were enhanced by factors such as the development of relevant policy frameworks, a series of strategic plans, national policy and technical guidelines, and implementation plans whose aim was to strengthen the general national HIV response.

Furthermore, studies conducted among acutely infected Men having Sex with Men (MSM) in Thailand regarding same-day ART initiation reported that 89.7% at six months and 97% at 12 months of viral suppression followed immediate ART initiation (Kroon, Phanuphak, Shattock, Fletcher, Pinyakorn, Chomchey, Akapirat, de Souza, Robb, Kim, & van Griensven 2017:4). Further studies undertaken in Uganda and the USA regarding same-day ART initiation yielded similar results to a study conducted in Thailand (Amanyire et al 2016:7; Hoenigl, Chaillon, Moore, Mehta, Gianelaa, Amico & Little 2016:2). Another study conducted on rapid antiretroviral initiation among adults in Khayelitsha, South Africa, reported high viral suppression rates (94%) among adults living with HIV offered accelerated ART initiation (Wilkinson, Duvivier, Patten, Solomon, Mdani, Patel, de Azevedo & Baert 2015:4).

Contrastingly, a study on pregnant women who were receiving care in respect of routine programmes in Western Kenya, found that rapid ART initiation could result in increased lost to follow-up post-ART initiation, which is possibly due to inadequate time for HIV status acceptance and disclosure (Helova et al 2016:286). Hence, the study's purpose was to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms based on the study findings and results.

1.3 PROBLEM STATEMENT

Since 2005, ART has been made widely accessible in Ethiopia, and there were 450,000 people living with HIV (PLHIV) on ART with 65% (50% -85%) coverage by 2018 (UNAIDS 2019:45; Girum, Wasie & Worku 2018:4). However, lost to follow-up (LTFU) is a key problem for the health care of people living with HIV (PLHIV) (Gesesew, Ward, Hajito,

Feyissa, Mohammadi & Mwanri 2017:2). Gesesew et al (2017:2) identified that large differences in the proportion of LTFU have been reported, ranging from 9.8% up to 31.4% in different regions of the country. According to Gesesew et al (2017:2), the risk factors for patients who are lost to follow-up after starting ART are still poorly understood in many low-income countries, including Ethiopia.

Observational studies undertaken in China, Thailand, Ethiopia, the USA, Malawi, South Africa, the United Kingdom, and Swaziland showed that there was beneficial high-to-moderate quality evidence regarding all assessed clinical outcomes, which included proof that ART started on the same-day did increase viral suppression at 12 months (three trials: RR 1.17, 95% CI 1.07–1.27) and retention in care at 12 months (RR 1.11, 95% CI 0.99–1.26) (Ford, Migone, Calmy, Kerschberger, Kanters, Nsanzimana, Mills, Meintjes, Vitoria, Doherty & Shubber 2018:20). Another study undertaken in Canada entitled: “Early bird gets the fattest worm: Benefits and future directions with early antiretroviral therapy initiation in primary HIV infection”, revealed that initiation of early ART protects immune cells that are instrumental in the control of HIV and prevention of other opportunistic infections (Chen, Ramendra, Lu & Routy 2018:780). In contrast, evidence from a study conducted in Nasarawa State, Nigeria, on the early ART initiation clinical outcomes of key populations indicated that rapid initiation of ART could lead to lost to follow-up and retention at 7 months was 63.9% (Ibiloye, Decroo, Eyona, Eze & Agada 2018:7).

Current attention has premised on the question of how soon ART should be commenced after confirmation of an HIV diagnosis. In the early years of the HIV response, limited concerns and resources linked to suboptimal compliance resulted in careful ART initiation. Before beginning ART, people living with HIV receive continuous counselling sessions that could last several weeks to months. According to the World Health Organization’s consolidated guidelines concerning the use of antiretroviral drugs in the prevention and treatment of HIV infection, during this pre-ART period, substantial mortality and lost to follow-up were observed, particularly among people with advanced HIV disease (World Health Organization 2017:19).

There is a lack of evidence on the challenges and benefits of same-day ART initiation for retention and viral suppression in Ethiopia.The researcher, who works at a non-governmental organisation that deals with HIV technical support for healthcare facilities in Ethiopia, noted that also lost to follow-up of patients who have initiated same-day ART

was also a challenge. Furthermore, the researcher intends to conduct the study due to problems identified with retention in HIV care and viral suppression based on a literature review and the gaps identified in that regard, specifically in Ethiopia. The reviewed literature found that same-day ART initiation has varying effects on viral suppression and retention in HIV care (Labhardt et al 2018:1107). This study aimed to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms.

1.4 RATIONALE OF THE STUDY

There is a significant gap in evidence regarding the benefits and challenges of same-day ART initiation for retention and viral suppression in Ethiopia. Observations from healthcare facilities, supported by an NGO specialising in HIV technical support, indicate that patients initiating same-day ART frequently encounter retention challenges. Additionally, there is a lack of evidence regarding same-day ART initiation as a test-and-treatment approach, with no research conducted and published in Ethiopian healthcare facilities. This research aims to address this gap by investigating the status of same-day ART initiation in selected healthcare facilities in Ethiopia, providing crucial insights for improving HIV care and treatment outcomes.

1.5 PURPOSE OF THE STUDY

The purpose of this study was to evaluate the same-day ART initiation regarding viral suppression and retention of patients in HIV care. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms.

1.5.1 Research objectives

The objectives of the study are listed in the context of the following three phases:

Phase 1: Qualitative approach

- To explore and describe same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV Care in Ethiopia.

Phase 2: Quantitative approach

- To evaluate same-day ART initiation regarding retention of patients in HIV care at the healthcare facility level in Ethiopia and
- To evaluate same-day ART initiation regarding viral suppression of patients in HIV care at the healthcare facility level in Ethiopia.

Phase 3: Strategies development and validation

- To develop strategies for same-day ART initiation, tracing HIV patients who are lost to follow-up and viral load monitoring mechanisms.
- To validate the developed strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and enhancing viral load monitoring mechanisms.

1.5.2 Research questions

In alignment with the aforementioned research objectives, the research questions are also organised according to the corresponding three phases outlined below:

Phase 1: Qualitative phase

The grand tour question was: “How will same-day ART initiation status be associated with viral suppression and retention in HIV care in Ethiopia?” This was followed by the below-cited probing questions:

- What are the benefits encountered with the initiation of same-day ART?
- What are the challenges encountered with the initiation of same-day ART?
- What are the factors that led to lost to follow-up for patients started on same-day ART from HIV care?

Phase 2: Quantitative phase

- How can same-day ART initiation be evaluated regarding retention in HIV care at the healthcare facility level in Ethiopia?
- How can same-day ART initiation be evaluated regarding viral suppression at the healthcare facility level in Ethiopia?

Phase 3: Strategies development and validation

- What strategies can be developed to assist in same-day ART initiation, tracing HIV patients who are lost to follow-up, and viral suppression monitoring mechanisms?

- How can the developed strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and enhancing viral load monitoring mechanisms be validated?

1.6 SIGNIFICANCE OF THE STUDY

The study findings will inform the Ministry of Health and related stakeholders of the same-day ART initiation regarding viral suppression and retention of patients in HIV care. Furthermore, the researcher developed strategies that should be utilised to optimise same-day ART initiation, retention of patients started on same-day ART in HIV care, and viral suppression monitoring mechanisms in healthcare facilities in Ethiopia. The significance of this is that the findings will further assist policy designers at the federal level, experts at the regional level, and healthcare providers at the healthcare facility level to understand and address factors related to same-day ART initiation and the benefits and challenges related to same-day ART initiation in Ethiopia's healthcare services.

1.7 DEFINITION OF TERMS

The researcher defined the terms conceptually and operationally as follows:

1.7.1 Acquired immune deficiency syndrome (AIDS)

AIDS is a disease of the immune system induced by HIV infection, which also destroys the CD4 T lymphocytes (CD4 cells) of the immune system, rendering the body vulnerable to infections and cancers that are life-threatening (AIDS Info Glossary 2021:2). In this study, AIDS is premised on individuals with HIV who were initiated on treatment on the same-day they received their diagnosis.

1.7.2 Adherence supporters

Adherence supporters are trained non-clinical staff that facilitate intra-healthcare facility and inter-healthcare facility referral linkage, track patient appointments, and conduct tracing for lost patients (Ministry of Health Ethiopia participant manual 2022:487). In this study, adherence supporters refer to people trained on HIV providing counselling for HIV patients who were enrolled in this study in the ART clinic of selected healthcare facilities.

1.7.3 Antiretroviral

Antiretroviral is a drug used to prevent a retrovirus, such as HIV, from replicating (AIDS Info Glossary 2021:10). In this study, antiretroviral is referred to as an ARV drug provided for patients started on same-day ART.

1.7.4 Antiretroviral therapy (ART)

ART is the use of a mixture of three or more ARV drugs to treat HIV infection (WHO 2017: V). In this study, antiretroviral therapy refers to a combination of ARV drugs that the patients enrolled in this study received.

1.7.5 ART clinic

ART clinic is one of the departments or units in the hospital that was introduced with the purpose of providing HIV prevention, treatment, care, and support to the most vulnerable population (East African Health Research Commission online [e.c.]). In this study, the ART clinic refers to the ART data room of healthcare facilities selected for this study, from which data was collected.

1.7.6 Case managers

Case managers are trained non-clinical staff that do adherence counselling, support index case family testing, screen for mental illness and link to treatment, facilitate referral linkage with community resources, patient tracking, and education and support (Ministry of Health Ethiopia participant manual 2022:487). In this study, case managers represent a team of healthcare providers responsible for providing case management for patients who initiated the same-day ART selected for this study from selected healthcare facilities.

1.7.7 Clinical records

Clinical records are formal records of a clinician's work and must be recorded in a scientifically correct, clear, and legible manner (General Medical Council 2013:8). In this study, clinical records refer to same-day ART initiated patient information collected from the smart care database using the checklist.

1.7.8 COVID-19 levels

Vital Strategies, a US-based non-governmental organisation, defined the COVID-19 level as follows (Vital Strategies 2020:3).

Alert Level 4 Very high risk: a widespread outbreak that is growing with many undetected cases. Take strong measures to limit all contact.

Alert Level 3 High risk: many cases, including community spread, with undetected cases likely. Limit everyday activities to increase safety.

Alert Level 2 Moderate risk: moderate number of cases, with most cases from a known source. Increase efforts to limit personal exposure.

Alert Level 1 New normal: cases are rare, and contact tracing can be used to control the virus. Take everyday precautions. In this study, the COVID-19 level refers to the pandemic level as per the Ethiopian national and University of South Africa COVID-19 position statement on research ethics to be followed for data collection during the pandemic.

1.7.9 Data clerks

Data clerks are trained non-clinical information technology (IT) professionals that work on the registration and documentation of HIV services, updating ART registers, updating the ART database, and compiling monthly reports on cohort analysis reporting (Ministry of Health Ethiopia participant manual 2022:487). In this study, data clerks refer to data professionals working on smart care databases and supporting the researcher in data extraction from the smart care database during data collection.

1.7.10 Factors associated with same-day ART initiation

Factors associated with same-day ART initiation are factors that can either positively or negatively influence the process. These include socio-demographic factors, health facility characteristics, community-related elements, and behavioral aspects (Moges, Adesina, Okunlola & Berhane 2020b:12).

1.7.11 Healthcare providers

Healthcare providers include organisations and actors that deliver health care goods and services as their primary activity, as well as those for which health care provision is only one among several activities (Organisation for Economic Co-operation and Development, Eurostat & World Health Organization 2017:122). In this study, the healthcare providers are the clinicians and support staff at healthcare facilities, including physicians, nurses, case managers, and adherence supporters working actively at an ART clinic.

1.7.12 Health experts

Experts are defined as persons with a high level of knowledge or skill relating to a particular activity or subject (Cambridge Dictionary online [c.d.]). For the purpose of this study, health experts are master's and/or PhD-level healthcare professionals who are working on HIV programmes at town health offices, regional health bureaus, and the Federal Ministry of Health.

1.7.13 Human immunodeficiency virus (HIV)

The human immunodeficiency virus (HIV) is the virus that causes the acquired immune deficiency syndrome (AIDS Info Glossary 2021:79). For purposes of this study, the term HIV is premised on the presence of the HIV virus in the bodies of patients who were initiated on same-day ART.

1.7.14 Patients

A patient is defined as an individual awaiting or under medical care and treatment (Merriam-Webster online [m.w.]). In this study, patients are the people living with HIV who have started on same-day antiretroviral therapy and participated in this study.

1.7.15 Retention in care

Retention is the process of keeping people living with HIV who are receiving treatment, uninterrupted ART, and continuous monitoring in order to achieve long-term viral suppression and optimal treatment outcomes (Federal Ministry of Health Ethiopia

2018:138). In this study, retention refers to patients who have started ART on the same-day from the 1st of October 2017 until the 30th of October 2019 and who have participated in this study from the beginning until the end date.

1.7.16 Same-day antiretroviral initiation

Same-day antiretroviral initiation is the acceptance of ART on the same-day of HIV diagnosis and returning home with prescribed ART medication (Moges et al 2020b:4). For the purpose of this study, same-day antiretroviral initiation refers to patients who started ART on the day of their HIV diagnosis and enrolled in this study.

1.7.17 Smart care database

The smart care database refers to electronic systems that support clinical care and continuity of care by providing patients with a longitudinal health record through the use of a smartcard (Republic of Zambia Ministry of Health 2019:9). In this study, the smart care database refers to the database from which patients enrolled in this study were extracted for both qualitative and quantitative phases.

1.7.18 Strategy

‘Strategy’ is derived from the Greek ‘strategus’ or ‘strategos’, which means "a commander-in-chief, general, or chief magistrate” (Hughes 2021:3). The essence of strategy is the effort to gain and retain the initiative and to minimise the effects of chance (Hughes 2021:3). In this study, strategies refer to the measures taken to monitor same-day ART initiation, lost to follow-up, and viral load suppression mechanisms that were developed by the researcher.

1.7.19 Theory

Theory refers to a set of interrelated concepts, definitions, and propositions that present a systematic view of events or situations by specifying relations among variables of the particular theory for the purpose of explaining and predicting events or situations (Glanz, Rimer & Viswanath 2015:50). In this study, theory refers to the health belief model used to guide the study and strategies development.

1.7.20 Trace

Trace is defined as the process and activities linked to finding someone or something that was lost (Cambridge Dictionary online [c.d.]). For this study, trace is associated with the systematic process of identifying HIV patients who missed appointments or lost contact with HIV care. It involves reaching out to them through home visits, phone calls, and text messages and encouraging them to return to care.

1.7.21 Viral suppression

Virologic control occurs when ART reduces a person's viral load (HIV RNA) to an undetectable level (<1000 copies/ml) (AIDS Info Glossary 2021:180). In this study, viral suppression refers to patients with a viral load below 1000 copies/ml at six, 12, and 24 months.

1.8 THEORETICAL FRAMEWORK OF THE STUDY

According to Polit and Beck (2017:180), the theoretical framework informs the researcher and allows for the results to be generalised to other groups and settings beyond those of the study participants. Creswell and Creswell (2018:105) explained that there are various approaches to incorporating theory into a mixed methods study to support researchers in their collection, analysis, and integration of quantitative and qualitative data using diverse mixed methods designs.

Theoretical frameworks help organise ideas and plan research, interventions, and analysis. The theory of reasoned action (TRA), the theory of planned behaviour (TPB), and the health belief model (HBM) are all excellent frameworks for conceptualising, measuring, and identifying factors influencing health (Glanz et al 2015:141). By introducing and describing the theory that explains the research problem's existence, the preferred theoretical framework can act as a structure that holds the study together. Based on research objectives and questions, the researcher used health behaviour theory.

Health behaviour is defined as any behavioural practice that has an impact on physical health, regardless of whether the behaviour promotes or jeopardises health (Wenzel

2017:1611). Wenzel (2017:1611) stated that health behaviours are among the primary causes of many preventable chronic diseases; promoting healthy behaviours and changing unhealthy ones have been identified as the most efficient ways to lower chronic disease morbidity rates, decrease mortality rates, and reduce health care costs. Glanz et al (2015:11) stated that seven major settings are particularly relevant to contemporary health behaviour; healthcare setting, school, community, worksite, home, consumer marketplace, and communication environment. In this study, the health belief model (HBM) and theory of reasoned action (TRA) were used as guides in answering research questions.

1.8.1 Health belief model (HBM)

The health belief model was developed in the 1950s by social psychologists in the field of public health who sought to understand reasons for some people's reluctance to utilise health services such as screening and immunisation (Glanz et al 2015:75). The health belief model (HMB) is founded on four seminal constructs. The first two constructs relate to a specific disease, while the second two relate to a prognostic action pursued for the reduction of the disease risk or severity. Perceived vulnerability or susceptibility depends on the particular individual's perceived risk of contracting the disease if he or she continues on the current course of action. Perceived severity prevails in the instance of the disease, and its consequences become serious or severe according to the particular individual's perception. Furthermore, perceived benefits relate to the advantages perceived in relation to the alternative course of action, including the extent of the disease's risk reduction and its severity consequences.

Perceived barriers (or perceived costs), on the other hand, refer to the disadvantages perceived in relation to the adoption of the recommended action and perceived impediments that could hinder the recommended action's successful performance. These factors are widely assumed to combine incrementally in influencing the possibility of performing the behaviour. Thus, high susceptibility, high severity, high benefits, and low barriers are construed as factors that cause a high probability of the recommended action's adoption. Cues to action (events that trigger behaviour) constitute another frequently mentioned factor mentioned in relation to the HBM (Glanz et al 2015:78).

The health belief model (HBM) was used and applied in a variety of HIV prevention, care, and treatment aspects. In this study, the health behaviour theory was used to examine the benefits of same-day ART initiation for retention and viral suppression. Behaviour theory was used to examine the benefits of same-day ART initiation for retention and viral suppression. The theory views human development as a lifelong process in terms of which expectations, beliefs, self-perceptions, goals, and intentions give shape and direction to behaviour. It states that the biggest problem with respect to the change in behaviour is not about instructions given to people regarding what they should or should not do.

This applies to both patients receiving ART therapy and healthcare providers providing ART services. Same-day ART initiation requires adherence preparation, but the client's reaction to HIV positivity may affect treatment success (retention in care and viral suppression). Regarding provider skill, perceived advantages and disadvantages may influence treatment success and adherence to ART. The health belief model concepts of perceived benefits, perceived susceptibility, perceived severity, and perceived barriers were used in the study findings' interpretation and discussion. The health belief model is discussed in greater detail in Chapter 3.

1.8.2 Theory of reasoned action/ theory of planned behaviour

The theory of reasoned action (TRA) was developed by Martin Fishbein and Icek Ajzen to explain behaviours under volitional control. Furthermore, the TRA is the most important predictor of behavioural intention, which is based on an individual's attitude towards a particular norm or behaviour (Miller 2016:82). Wenzel (2017:1611) stated that the theory of planned behaviour (TPB) is an extension of the TRA and includes the additional construct of perceived control of the behaviour's performance, which is also posited to determine behavioural intentions. According to Miller (2016:82), attitudes are derived from beliefs about the likely outcomes of performing the behaviour multiplied by evaluations of those outcomes.

Miller (2016:82) further attests that the subjective norm is derived from beliefs about what specific referents (spouse, friends, or medical practitioner) believe one should do (normative beliefs), which are weighted by the motivation to comply with the views of those significant others. According to the TRA, behavioural intention is propelled by an

individual's attitude towards behaviour as well as beliefs about whether people who are significant in the life of each individual disapprove or approve the behaviour (subjective norm). On the other hand, self-efficacy is the confidence a person has that certain behaviours can be performed.

Thus, the theory of reasoned action or planned behaviour applied to this study is premised on the view that one's attitude towards same-day ART initiation is based on beliefs about HIV positivity acceptance, the need for further conformity, fear of drug side effects, and stigma that are believed to project the positive or negative aspects of those outcomes. In the study findings' interpretation and discussion, the theories of reasoned action, attitude towards the behaviour, subjective norm concerning the behaviour, and perceived behaviour were used. Further details on the theory of reasoned action are discussed in Chapter 3, which is wholly focused on the theoretical framework.

1.9 RESEARCH SETTING

A research setting is the physical place at which a study is undertaken (Grove & Gray 2019:59). According to Grove and Gray (2019:59), research studies can be undertaken in either of the three commonly known settings, namely, natural, partially controlled or highly controlled settings. In this study, two specific health care facilities in Adama and Bishoftu towns in the East Shewa zone of Ethiopia constituted the study's setting, or research site (refer to Annexure 42 for a map of the setting of the main study site). In keeping with the applicable ethical considerations in this study, the research settings were referred to as "Healthcare Facility 1" and "Healthcare Facility 2" during the discussion. Additionally, the two specific pre-testing sites were the two specific healthcare facilities in Adama Town, which were referred to as "Healthcare Facility A" and "Healthcare Facility B" during the discussion (refer to Annexure 43 for the pre-testing healthcare facility map). The details of the research setting are discussed in greater detail in Chapter 4, which is entirely focused on the research design and methods.

1.10 PHILOSOPHICAL ASSUMPTIONS

The term 'philosophy' refers to our assumptions, values, and beliefs about the nature of reality, knowledge, and methods of obtaining knowledge (Brink, Van der Walt & Van Rensburg 2018:20). According to Brink et al (2018:22), assumptions are principles that

we accept to be true without proof or verification and are taken for granted, often entrenched in thinking and behaviour. They determine our understanding of concepts, definitions, purposes, and relationships. Assumptions form the basis from which theoretical reasoning proceeds. According to Creswell and Plano-Clark (2018:3), the elements for each worldview differ, and they are reflected in different philosophical assumptions in terms of ontology, epistemology, axiology, methodology, and rhetoric.

The study's philosophical assumptions are discussed and explained from the research perspective below (refer to Chapter 4 for details).

1.10.1 Ontology

Ontology is the dimension of research paradigms that reflects philosophical assumptions about the nature of truth and reality and whether they are external or constructed (Creamer 2018:353). In this study, a mixed-methods study guided by the pragmatism paradigm, the researcher's ontological view acknowledges multiple realities shaped by the context and experiences of individuals. This perspective accepts that reality is not singular or static but is constructed through diverse lenses, encompassing qualitative insights from patients and healthcare providers as well as quantitative data from clinical outcomes.

1.10.2 Epistemology

Epistemology is the dimension of research paradigms that reflects philosophical assumptions about the relationship between the knower and reality and the participant and what constitutes credible or warranted conclusions or inferences (Creamer 2018:351). In this mixed-methods study following the pragmatism paradigm, the researcher's epistemological view embraces the idea that knowledge is derived from practical consequences and experiences. This perspective values both qualitative insights from patients and healthcare providers and quantitative data from clinical outcomes, recognising that each type of data provides unique and complementary understandings. The researcher seeks to integrate these diverse sources of knowledge to develop a comprehensive understanding of the effectiveness and impact of same-day ART initiation.

1.10.3 Axiology

Axiology refers to the values and beliefs that we hold (Cohen, Manion & Morrison 2018:3). According to Cohen et al (2018:3), this view moves us beyond regarding research methods as simply a technical exercise to being concerned with understanding the world; this is informed by how we view our world(s), what we take understanding to be, what we see as the purposes of understanding and what is deemed valuable. In this mixed methods study following the pragmatism paradigm the researcher's axiological view recognizes the importance of values in shaping the research process and outcomes. The researcher values the perspectives and experiences of patients and healthcare providers, ensuring their voices are heard and respected.

1.10.4 Methodology

Methodology is the identification, study, and justification of research methods (Johnson & Christensen 2020:144). Thus, the methodology represents the techniques involved in the process of gathering data for the study's specific purpose (Kothari & Garg 2019:6). In a mixed-methods exploratory sequential study following the pragmatism paradigm, the methodological view of the researcher focuses on using both qualitative and quantitative approaches in a complementary manner to gain a comprehensive understanding of same-day antiretroviral therapy (ART) initiation and its association with viral suppression and retention in HIV.

1.10.5 Rhetoric

Rhetoric is the art or science of language, oral and written communication, and argument (Johnson & Christensen 2020:144). In this study, the rhetoric view in this mixed-methods exploratory sequential study, guided by the pragmatism paradigm, emphasises clarity, accessibility, and practicality. By tailoring communication to diverse audiences and integrating qualitative and quantitative narratives, the researcher ensured that scientific writing was maintained throughout the study.

1.11 RESEARCH PARADIGM

According to Burns and Grove (2018:236), paradigms are 'world-views' that indicate researchers' distinctive epistemological, ontological, pragmatic, and methodological perspectives. The researcher used the pragmatic research paradigm in this study. Pragmatism is a philosophical movement that asserts that an ideology or proposition is true and serves its purpose (Baran & Jones 2016:44). According to Baran and Jones (2016:46), researchers who use a pragmatic approach are free to use any of the methods, techniques, and procedures linked to quantitative and qualitative approaches. Baran and Jones (2016:44) further define pragmatism as a method for attaining clarity of ideas within a normative conception of logic, within the norms for continuing, self-correcting inquiry directed towards truth. Baran and Jones (2016:46) explained that the pragmatic approach uses the mixed method, which suits the research problem and is not caught up in philosophical debates about the best approach. Therefore, the pragmatism philosophy was opted for, in this study for the purpose of obtaining a more holistic picture of same-day ART initiation associated with viral load suppression and retention in HIV care. The details of the research paradigm are discussed in greater detail in Chapter 4, which focuses entirely on the research design and methods.

1.12 RESEARCH DESIGN

The researcher applied an exploratory sequential mixed methods design (refer to Figure 1.1). The mixed method research design encompasses both quantitative and qualitative research, where neither type of method is inherently linked to any particular inquiry paradigm (Creswell & Plano Clark 2018:3-4). Furthermore, mixed methods involve both quantitative and qualitative approaches throughout single-study research, in which data collection and analyses of both facilitate and provide a more comprehensive understanding of health issues and potential resolutions (Creswell & Plano-Clark 2018:3). In addition, a mixed methods researcher focuses on the combination of narrative and numeric data analysis, whereas a quantitative researcher typically focuses on numerical data analysis. However, a qualitative researcher focuses on narrative data (Baran & Jones 2016:40).

The goal of an exploratory sequential mixed method design is to generalise qualitative findings to a larger sample size (Johnson & Christensen 2020:105). An exploratory

sequential mixed methods design was used, which is characterised by an initial process of qualitative data gathering and analysis, followed by a phase of quantitative data collection and analysis. In this method, the qualitative part helped to develop quantitative instruments.

In an exploratory sequential mixed methods design, the researcher started by exploring qualitative data analysis, and then used the findings and literature to filter the data collection checklist in the quantitative phase. In this study, three phases were used. Phase 1 was qualitative and focused on in-depth interviews. Phase 2 was quantitative, and focused on retrospective document analysis, while Phase 3 focused on strategies development and validation. Accordingly, strategies were developed through the integration of the findings of Phase 1 and the results of Phase 2. Furthermore, logical reasoning (inductive and deductive reasoning), a literature review, and a theoretical framework were used in strategies development. The developed strategies were validated by health experts using the Modified Delphi technique shown in Figure 1.1 below.

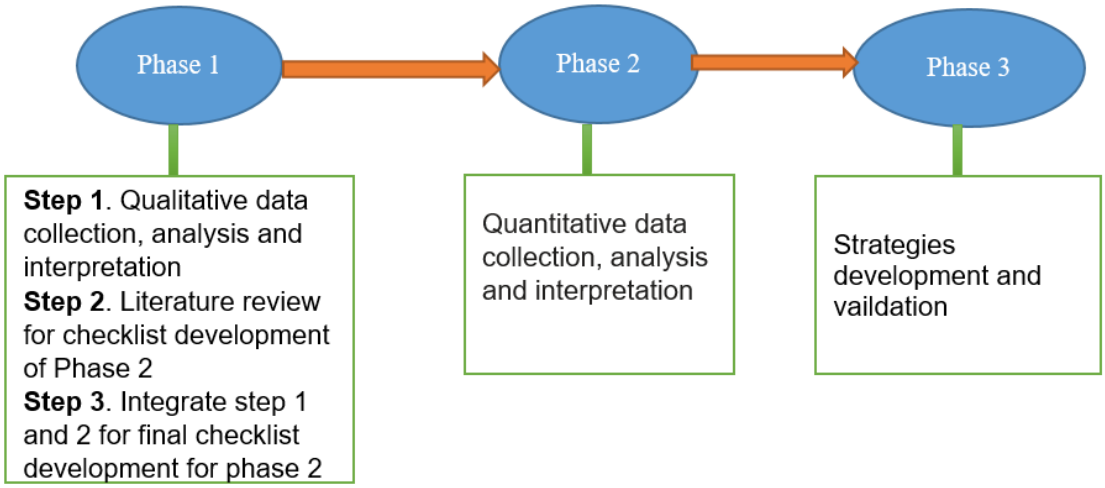


Figure 1. 1: Exploratory sequential mixed method (Creswell & Plano Clark 2018:156).

1.13 RESEARCH METHODOLOGY

Research methods form the foundation of the scientific enterprise, illustrating the process of systematic knowledge building (Patten & Newhart 2018:3). Polit and Beck (2017:33) define a research method as the technique a researcher uses to structure a study and gather and analyse information relevant to a research question. In this study, the

researcher addressed the population, sampling technique, and sample, along with the exclusion and inclusion criteria, the development and pre-testing of the research instrument, and the processes of data acquisition and analysis.

1.13.1 Phase 1: Qualitative approach

Qualitative research collects data that will be analysed as words (Patten & Newhart 2018:168). According to Patten and Newhart (2018:168), data collection and analysis often purposefully intermingle to improve the results. This phase was used to explore the factors that have led to lost to follow-up among patients who have started on same-day ART and to describe the benefits and challenges related to same-day ART initiation, which were the objectives of the study in the qualitative phase (Phase 1).

The purpose of Phase 1 was to refine the data collection checklist that was used in the quantitative phase based on the qualitative findings, literature, and theoretical framework. Baran and Jones (2016:86) stated that the researcher uses the analysis of the findings of the qualitative phase to build Phase 2 (the quantitative phase) and to test or generalise the initial exploratory findings of the qualitative phase. The healthcare providers' team working in the ART clinic and patients started on same-day ART in selected healthcare facilities were interviewed using an interview guide. Exploratory and descriptive research designs were used.

1.13.1.1 Exploratory and descriptive research design

1.13.1.1.1 Exploratory research design

Baran and Jones (2016:69) define exploratory research design as seeking to determine how things are happening. Meanwhile, Polit and Beck (2017:15) describe exploratory research as a valuable method for gaining new insights into a research topic. In this study, the researcher explored the factors that have led to lost to follow-up for patients who have started on same-day ART initiation.

1.13.1.1.2 Descriptive research design

Descriptive research design is focused on the population's attributes at a single point in time or on variabilities within a population over time (Houser 2015:258). In descriptive research design, the researcher observes a phenomenon, situation, or event by focusing on occurrences and their magnitude (Polit & Beck 2017:15). In this study, the benefits and challenges related to same-day ART initiation at the healthcare facility level were described.

1.13.1.2 Population

A population is the whole set of individuals, objects, or units about whom or about which the researcher has some particular interest (Houser 2015:258). The target population is the set of elements to which a researcher desires to apply the findings of a study (Patten & Newhart 2018:71). In this study, the Phase 1 target population were the patients who started on same-day ART from the 1st of October 2017 until the 30th of October 2019, physicians, nurses, case managers, and adherence supporters working in the ART clinics of two selected healthcare facilities in two towns, Adama and Bishoftu, in the East Shewa zone of Ethiopia.

1.13.1.3 Sampling technique and sample

Non-probability purposive sampling was applied in the recruitment of study participants, who were patients who were started on same-day ART from the 1st of October 2017 until the 30th of October 2019 and the healthcare provider's team consisting of physicians, nurses, case managers, and adherence supporters working in the ART clinics of selected healthcare facilities.

Brink et al (2018:128) described samples that are too small (numbers of 20 or even 30 in qualitative studies), implying that the findings may be idiosyncratic, and making the researcher's observation of the participants' identities easier. In this study, 20 healthcare workers, including physicians, nurses, case managers, and adherence supporters, from a selected healthcare facility and ten (10) patients started on same-day ART were recruited for their involvement in the study. Study participants were recruited based on

the study population of each healthcare facility, and a 2:3 proportion was used to select the number of participants required from each healthcare facility.

The total sample from Healthcare Facility 1 was eighteen (18), consisting of five (5) patients, three (3) physicians, two (2) case managers, three (3) adherence supporters, and five (5) nurses. The total sample from Healthcare Facility 2 was twelve (12), which was composed of five (5) patients, one (1) physician, two (2) case managers, two (2) adherence supporters, and two (2) nurses. Thus, the total sample for both healthcare facilities was thirty (30) participants. Finally, the size of the sample was determined by means of data saturation.

1.13.1.4 Inclusion and exclusion criteria

Inclusion criteria were:

- All participants older than 18 years of age;
- Patients on same-day ART from the 1st of October 2017 until the 30th of October 2019;
- Patients actively in HIV care (currently on ART) and
- Physicians, nurses, case managers, and adherence supporters working in ART clinics at selected healthcare facilities.

Exclusion criteria were:

- Participants who were less than 18 years old;
- Patients who were not currently in HIV care and had not started on same-day ART;
- Patients who started on ART before the 1st of October 2017 and after the 31st of October 2019 and
- Physicians, nurses, case managers, and adherence supporters who are not working in the ART clinics of selected healthcare facilities.

1.13.1.5 Development of data collection instruments

A research instrument is a tool for data collection that may vary in complexity, interpretation, design, and administration (Pandey & Pandey 2015:57). Data collection instruments for patients and the healthcare provider's team were developed based on research objectives and questions. The instrument was checked for content validity, credibility, and confirmability by the supervisor and town health office-level health experts

working in HIV programmes. Furthermore, the credibility of the developed data collection tools was ensured through pre-testing. Data were collected from patients and healthcare providers, that is, physicians, nurses, case managers, and adherence supporters. Interview guides were used as instruments for data collection.

The collected data consisted of the study participants' demography, grand tour questions, and follow-up questions. The grand tour question was: "How was same-day ART initiation associated with viral suppression and retention in HIV care in Ethiopia?" Two separate interview guides were used for the patients (refer to Annexure 34 for and interview guide for ART patients) and healthcare providers (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team). The details of the development of the instrument are provided in Chapter 4, which focuses on the research design and methods.

1.13.1.6 Pre-testing of data collection instrument

Pre-testing of the data collection instrument is intended to test the feasibility of the particular instrument and the appropriate approach that will be later used in the main study (Guest & Namey 2015:1254). The goals of pre-testing the data collection instrument for this study were to address the research objectives while also ensuring the instrument's relevance, completeness, accuracy, validity, and reliability. According to Polit and Beck (2017:892), the sample used in pre-testing was drawn from the same population that fulfils the eligibility criteria.

Pre-testing of the interview guide was conducted with participants who fulfilled the inclusion criteria of the study. These participants were chosen from two healthcare facilities in Adama Town for the purpose of pre-testing. In order to avoid any potential bias, individuals for the pre-testing of the interview guide were recruited from healthcare facilities that offer same-day ART services different from the healthcare facility selected for the main study in Adama town. To ensure confidentiality, the two selected healthcare facilities for pre-testing were referred to as Healthcare Facility A and Healthcare Facility B. Prior to pre-testing, an approval letter to conduct pre-testing was received from the healthcare facilities (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B).

Adherence to COVID-19 guidelines (refer to Annexure 3 for UNISA COVID-19 statement guidelines) was strictly followed, and participants signed an informed consent form (refer to Annexure 30 for an informed consent form for healthcare providers in English and Annexure 31 for an informed consent form for patients in Afan Oromo) before their participation in pre-testing. Two separate interview guides were used for patients (refer to Annexure 34 for an interview guide for the ART patients) and healthcare providers (refer to Annexure 35 for an interview guide for ART clinic healthcare provider team). Healthcare providers and patients who participated in this study pre-testing were recruited through respective healthcare facility human resource unit heads and ART clinic data clerks who have signed a confidentiality binding agreement (refer to Annexures 20 & 22 for human resource unit heads of pre-testing sites and Annexures 21 & 23 for data clerks of pre-testing sites) to maintain participant's privacy and confidentiality when sharing participants' information with the researcher. The total sample for pre-testing from Healthcare Facility A: was six (6), being two (2) patients, one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse. The total sample from Healthcare Facility B was five (5) participants, consisting of one (1) patient, one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse.

Thus, the total sample from both healthcare facilities was eleven (11) participants. Finally, the sample size was determined by data saturation. There was no modification to the interview guide after pre-testing. A detailed discussion of pre-testing is presented in Chapter 4, which is entirely focused on research design and methods.

1.13.1.7 Data collection

Data collection is the process of collecting pertinent information about selected variables in a systematic and established manner that enables researchers to respond to the research questions and evaluate the outcomes (Bairagi & Munot 2019:131). The details of the qualitative data collection method and approach are discussed hereafter.

1.13.1.7.1 Data collection method and approach

In the qualitative phase, the researcher's cell phone was utilised in the collection of the interview-based data. Polit and Beck (2017:730) intimate that interviews are a depiction of the researcher's conversations with the participants, during which an interviewer poses

questions to elicit responses from the interviewees or participants based on their ideas, opinions, and experiences. According to Polit and Beck (2017:743), most qualitative interviews take place in face-to-face situations, but technological advances are making remote synchronous interviewing possible.

Due to the COVID-19 pandemic, which was on level 4, the researcher changed data collection from face-to-face interviews to cell phone in-depth interviews based on the University of South Africa COVID-19 guidelines statement (refer to Annexure 3 for UNISA COVID-19 statement guidelines). Prior to the data collection, approval to collect data was granted by the Oromia Regional Health Bureau (ORHB) on the 26th of June 2020 (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo and Annexure 6 for permission granted to conduct study from ORHB in English translation for supervisor and examiners), Healthcare Facility 1 on the 21st of July 2020 (refer to Annexure 16 for granted permission to conduct study from Health Facility 1) and Healthcare Facility 2 on the 27th of July 2020 (refer to Annexure 17 for granted permission to conduct study from Health Facility 2). Healthcare providers and patients who participated in this study's in-depth cell phone interview were recruited through respective healthcare facility human resource unit heads and ART clinic data clerks who have signed a confidentiality binding agreement (refer to Annexures 24 & 26 for human resource unit heads and Annexures 25 & 27 for data clerks) to maintain participants' privacy and confidentiality when sharing participants' information with the researcher. Furthermore, participants' recruitment and data collection were done by the researcher.

For data collection, a separate interview guide was used for patients (refer to Annexure 34 for an interview guide for ART patients) and healthcare providers (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team), which contained demographic information and the grand tour question: "How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?" This was followed by probing questions. The demographic information was obtained before commencing cell phone in-depth interview recordings, which were later used in data analysis to understand the demographic profile of the study participants. In the qualitative phase, data collection was conducted through recorded cell phone interviews and the documentation of field notes as backup data.

The request to record was indicated in the informed consent form. They were assured that they have the right to withdraw from participation in the study if they wish, even if they have signed an informed consent form without any penalty. Data was collected from healthcare providers at Healthcare Facility 1 between the 30th of April 2021 and the 9th of June 2021 and from patients between the 29th of December 2020 and the 9th of January 2021. Similarly, data was collected from healthcare providers at Healthcare Facility 2 from the 10th of February 2022 until the 22nd of March 2022 and from patients between the 10th of January 2021 and the 6th of February 2021.

The total sample size from Healthcare Facility 1 was eighteen (18), consisting of five (5) patients, three (3) physicians, two (2) case managers, three (3) adherence supporters, and five (5) nurses. Meanwhile, the total sample size from Healthcare Facility 2 was twelve (12) participants, which was composed of five (5) patients, one (1) physician, two (2) case managers, two (2) adherence supporters, and two (2) nurses. Thus, the total sample for both healthcare facilities was thirty (30) participants. Finally, the sample size was determined on the basis of data saturation. The details of data collection are discussed in greater detail in Chapter 4.

1.13.1.8 Data management and analysis

Data management refers to the treatment of data in its raw state to prevent it from being contaminated (Blair 2016:92). Meanwhile, data analysis is the systematic organisation and processing of data for its conversion into the findings of the study (Brink et al 2018: 165). Qualitative research requires the researcher to interpret and make sense of the data (Blair 2016:92). Qualitative data analysis was conducted using in-depth cell phone interviews, and field notes were taken as complementary data during individual in-depth cell phone interviews. The researcher transcribed the data directly from the recorded cell phone in-depth interview and the field notes taken during the individual in-depth interviews. The data analysis steps entailed the researcher's reading and re-reading of all the transcripts carefully to get a sense of the whole, and then continuing with the coding of themes and subthemes.

The researcher applied thematic data analysis according to Tesch's eight steps for analysing the data, which included inductive, descriptive, and open-coding techniques (Creswell 2014:248). The demographic data collected during cell phone interviews was

used for data analysis to provide a comprehensive overview of the study participants (refer to Chapter 5). Verbatim transcripts were also sent to a co-coder (refer to Annexure 29 for signed confidentiality binding agreement by co-coder) and proof of co-coding (refer to Annexure 38 for proof of coding qualitative data) to analyse the data independently in accordance with Tesch's protocol. The co-coder is an educator and researcher with extensive experience in qualitative studies and in possession of a doctoral degree. The co-coder also confirmed that data saturation had occurred because all categories of participants interviewed were saturated with four or more themes and subthemes. The data analysis procedures and steps used in this study are described in detail in Chapter 4 and Chapter 5.

1.13.1.9 Trustworthiness in qualitative approach

Trustworthiness is the quality or state of being very exact, careful, or with strict precision, or the quality of being thorough and accurate. Evaluating the rigour of a qualitative study derives from the emerging theory's logic and the illumination provided for understanding the investigated phenomenon (Polit & Beck 2017:557). According to Brink et al (2018:157), trustworthiness is used in terms of validity and reliability in qualitative research. The rigour of the research was assessed through the criteria of credibility, transferability, dependability, and confirmability. Further details concerning the rigour of the study are discussed in Chapter 4.

1.13.2 Phase 2: Quantitative approach

Quantitative research examines and describes relationships and determines causal factors among variables (Burns & Grove 2018:236). During Phase 2 of this study, the quantitative approach was utilised to examine same-day ART initiation regarding viral suppression and evaluate the retention of patients started on same-day ART in HIV care at selected healthcare facilities. The quantitative approach used descriptive research design, cross-sectional study design, and retrospective document analysis.

1.13.2.1 Descriptive research design

Bairagi and Munot (2019:7) defined descriptive research design as generally used in business analysis or social problems where there is no control over the parameters or

variables. According to Polit and Beck (2017:304), descriptive research is valuable insofar as it involves observing, describing, and documenting situational aspects in their natural occurrence or manifestation, which could be a starting point for generating a hypothesis or developing a theory. In this study, a descriptive research design was used to evaluate same-day ART initiation regarding retention of patients in HIV care and viral suppression at the healthcare facility level in Ethiopia.

1.13.2.2 Cross-sectional study design

A cross-sectional study is non-current in nature, is conducted at a specific point in time, and can be exploratory, descriptive, or explanatory (Brink et al 2018:85). Cross-sectional studies are easier and more expedient to conduct than longitudinal studies because the researcher can collect all the needed data at a single time (Leedy & Ormrod 2021:178). Since the study is cross-sectional, data were then collected at one point in time and used to evaluate same-day ART initiation regarding retention of patients in HIV care and viral suppression at the healthcare facility level in Ethiopia.

1.13.2.3 Retrospective document analysis

Retrospective document analysis is a method in which data is collected on a current outcome and retrospectively connected to the determinants of a past occurrence (Polit & Beck 2017:300). In this study, two healthcare facilities in two towns were selected for retrospective document analysis and examination of same-day ART initiation regarding viral suppression and evaluation of patients' retention in HIV care. All clinical records used were from the 1st of October 2017 until the 30th of October 2019. A checklist (refer to Annexure 36 for Phase 2 data collection checklist) was used to extract data from the smart care database of selected clinical records of patients started on same-day ART.

1.13.2.4 Population

A retrospective document analysis was conducted. Population for Phase 2 was all clinical records of patients started on ART from the 1st of October 2017 until the 30th of October 2019 in Ethiopia. The target population was clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 in selected two healthcare facilities in Adama and Bishoftu towns, of which out of 581 clinical records,

266 were from Healthcare Facility 1, and 315 were from Healthcare Facility 2 (Healthcare Facility Level Database 2022).

1.13.2.5 Sampling technique and sample

A probability simple random sampling technique was used in the selection of the clinical records of patients started on ART from the 1st of October 2017 until the 30th of October 2019 from selected healthcare facilities. When creating a sample, a simple random sample has an equal chance (probability) of selecting each unit from the population being studied (Baran & Jones 2016:111; Brink et al 2018:119).

The total number of patients started on same-day ART in these two healthcare facilities from the 1st of October 2017 until the 30th of October 2019 was 581. In Healthcare Facility 1, 266 patients were started on same-day ART, while 315 patients were started on same-day ART from the 1st of October 2017 until the 30th of October 2019 in Healthcare Facility 2. A statistician assisted with the calculation of the sample size, and the Rao Soft formula was used to estimate the ideal sample size from each healthcare facility (Raosoft formula online [r.f.]). The sample size calculation was also based on research objectives. The sample size for Healthcare Facility 1 was 158, and for Healthcare Facility 2, it was 174. Thus, the total sample size from both healthcare facilities was 332. The details of the sample calculation were discussed in Chapter 4 under methodology.

1.13.2.6 Inclusion and exclusion criteria

Inclusion criteria were:

- Clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 and
- Adult age groups were included (ages greater than 18 years).

Exclusion criteria were:

- Clinical records of patients started on same-day ART transferred in from other healthcare facilities and
- Clinical records of patients started on same-day ART with incomplete information.

1.13.2.7 Development of data collection instrument

Creswell and Plano Clark (2018:287) assert that, in mixed methods research, researchers may decide to develop their own data collection instrument based on the qualitative findings. The checklist was the data collection instrument in this regard (refer to Annexure 36 for Phase 2 data collection checklist), which was developed based on the research objectives and questions. Furthermore, the checklist was refined in accordance with the qualitative findings and a literature review. A developed checklist was pre-tested to extract data from clinical records of patients started on ART from the 1st of October 2017 until the 30th of October 2019, based on inclusion criteria. The instrument's reliability and content validity were checked by the researcher's supervisor, town health office level health experts working in HIV programmes, and the statistician prior to conducting the main study. The details of the development of an instrument are discussed in Chapter 4.

1.13.2.8 Pre-testing of data collection instrument

According to Polit and Beck (2017: 392), it is incumbent for researchers who develop a new instrument, to first subject it to rigorous scrutiny and pre-testing for its evaluation and refinement. The purpose of a pre-test is to determine the time to be taken for the collection of data, identify weaknesses in an instrument, correct ambiguities, and enhance reliability. Furthermore, Polit and Beck (2017:892) explain that the sample used in pre-testing should be drawn from the same population that fulfils the eligibility criteria.

A pre-testing of the data collection checklist was undertaken at two purposefully selected healthcare facilities in Adama town. Furthermore, the pre-testing of the checklist was undertaken after receiving approval from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), Adama Town Health Office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), Healthcare Facility A (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A), and Healthcare Facility B (refer to Annexure 13 for granted approval to conduct pre-testing from Health Facility B). The researcher was granted approval to conduct pre-testing at Healthcare Facility A on the 14th of July 2020 and at Healthcare Facility B on the 19th of July 2020, which was used as an approval letter for entrance to healthcare facilities for pre-testing the quantitative data collection checklist. Since the data was collected from the smart care database,

permission to conduct pre-testing was used as a consent form. With the support of data clerks, the researcher obtained clinical records of patients who initiated same-day ART between the 1st of October 2017 and the 30th of October 2019 from their respective healthcare facilities. The data clerks at Healthcare Facility A and Healthcare Facility B have signed a confidentiality binding agreement to keep patients' clinical records confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexures 21 & 23 for data clerks at Healthcare Facility A and B).

The researcher randomly selected a total of twenty (20) clinical records, ten (10) from each healthcare facility, from the extracted clinical records of patients who started on the same-day. The two healthcare facilities were not part of the main study. The pre-testing of the data collection checklist was conducted during the low risk COVID-19 pandemic, which was on level 1. The smart care database was chosen for instrument pre-testing to mitigate the risk of exposure to the COVID-19 pandemic, which was on level 1. This decision also aimed to minimise interactions between medical record unit staff, data clerks responsible for extracting clinical records, and the researcher.

The researcher ensured that the contents and procedures of the data collection checklist were reliable, valid, and effective in obtaining high-quality data from the target population. The researcher collected data for the pre-testing of the checklist in the ART clinic data rooms of selected healthcare facilities from a smart care database where social distancing was applied, sanitizer was used, and contact with people and patients' charts was reduced. Pre-testing of the data collection checklist at Healthcare Facility A was conducted on the 4th of April 2023 and at Healthcare Facility B, it was conducted on the 5th of April 2023. It took 15-20 minutes to complete the checklist.

During the pre-testing of the data collection checklist, the clarity of questions, relevance of questions, order of questions, and time required for data entry and to complete the checklist were noted. To maintain confidentiality and privacy, a number was assigned to clinical records instead of a patient’s name. Twenty (20) clinical records that were used in pre-testing were captured and electronically stored on the researcher's personal computer for review and modification.

The 20 clinical records used for pre-testing the data collection checklist were excluded from the main data collection for this study as they originated from healthcare facilities separate from the main study setting. The data collection checklist was modified by the researcher after pre-testing, with a focus on data elements related to functional status at enrolment, ARV adherence at the most recent follow-up, patients' cotrimoxazole start status, and their HIV prevention plans. Those modifications were shared with the supervisor and the statistician for final approval in preparation for the main data collection (refer to Annexure 36 for the Phase 2 data collection checklist).

1.13.2.9 Data collection

1.13.2.9.1 Data collection methods and approach

Data collection relates to the systematic process of acquiring relevant primary and secondary information from multiple sources in order to address certain aspects of the study (Burns & Grove 2018:286; Creswell & Creswell 2018:242). The data for the quantitative phase was collected from clients' clinical records in selected healthcare facilities' ART clinic smart care databases.

Prior to the collection of data, permission was granted by both Healthcare Facility 1 and Healthcare Facility 2 (refer to Annexure 16 for granted permission to conduct studies from Health Facility 1 and Annexure 17 for granted permission to conduct studies from Health Facility 2). Data on clinical records was collected from the smart care database, and it was conducted at Healthcare Facility 1 on the 22nd of May 2023 until the 27th of May 2023 and from Healthcare Facility 2 on the 29th of May 2023 until the 5th of June 2023. The smart care database was selected for data collection to avoid the risk of getting the COVID-19 pandemic, which was on level 1, and to reduce contact between medical record unit workers.

Since data was collected from the smart care database, approved permission to access clinical records from the smart care database was used as a consent form. The data clerks at Healthcare Facility 1 and Healthcare Facility 2 have signed a confidentiality agreement to keep patients' clinical records confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexures 25 & 27 for data clerks at Healthcare Facilities 1 and 2). The researcher collected data from the

respective healthcare facilities of patients who started on same-day ART between the 1st of October 2017 and the 30th of October 2019. Data clerks assisted the researcher with clinical record exports from the healthcare facility's smart care database. A similar procedure was adopted for the data collection at the two chosen healthcare facilities. The same data collection checklist was used for all clinical records as extracted from the smart care database selected for this study (refer to Annexure 36 for the Phase 2 data collection checklist).

From Healthcare Facility 1 (one), 266 clinical records were extracted, while from Healthcare Facility 2 (two), 315 clinical records were extracted, making a total of 581 clinical records. A number was assigned to the extracted clinical records from 1 to 581 to randomly select 332 clinical records using a computer system. The time taken to complete one checklist was 17.5 minutes, with a range of 15-20 minutes. The completed 332 checklists were stored in a locked and secured cabinet in the researcher's home to maintain the confidentiality and privacy of the collected data. Furthermore, collected data and completed checklists were stored for data analysis purposes. Details of the data collection processes are discussed more elaborately in Chapter 4.

1.13.2.10 Data management and analysis

Data analysis is the systematic organisation and processing of acquired data for its preparation and conversion to the findings of the study (Brink et al 2018: 165). According to Polit and Beck (2017:512), statistical analysis enables researchers to organise, interpret, and communicate numeric information. Statistics can be descriptive or inferential. Through the consultation of a statistician (refer to Annexure 28 for confidentiality binding agreement signed by the statistician) for a confidentiality binding form and for proof of data analysis support (refer to Annexure 39 for proof of quantitative data analysis certificate), the researcher performed data analysis with the use of the Statistical Package for Social Science (SPSS) version 28 software. Descriptive and inferential statistics were used for data analysis. Descriptive statistics were used to describe and synthesise the data in terms of frequency and percentage.

Data were analysed by frequencies of age, sex, marital status, and months on ART since same-day ART initiation. Same-day ART initiation regarding retention in HIV chronic care and viral suppression was also presented by means of frequencies and percentages. The

Chi-square test was used to examine the association between viral suppression status and gender, age, retention, stage, area of residence, functional status, and disclosure status. In instances where the data was limited, resulting in expected frequencies of less than 5 in at least one cell, Fisher's exact test was applied (Field 2018:1086).

Inferential statistics are statistical techniques used to make estimates or inferences about the characteristics of interest for a population using the data from a sample data set (McNabb 2021:78). Logistic regression was performed to test relationships between the factors associated with retention in HIV care. These variables included gender, age, marital status, educational status, religion, patient address, patient history of opportunistic infections at enrolment, who stage at enrolment, last follow-up ARV adherence, HIV disclosure status at enrolment, last follow-up ARV adherence, and baseline BMI results (refer to Annexure 36 for Phase 2 data collection checklist). Further details concerning data management and analysis are discussed in Chapter 6.

1.13.2.11 Validity and reliability in quantitative approach

1.13.2.11.1 Validity

According to Patten and Newhart (2018:126), validity is the expression of the measuring instrument's capture of accurate information as originally intended. External, internal, content, and face validity were applied in this context. These are discussed further in Chapter 4.

1.13.2.11.2 Reliability

Reliability refers to the degree to which random error is absent from a particular measurement procedure; consistency and repeatability of measurements give that consistent result (Patten & Newhart 2018:136). The reliability of the study findings was ensured through an expert's review of the data collection checklist as well as the instrument's pre-testing. Additionally, the supervisor and statistician confirmed the instrument's reliability during the final stage. Reliability was discussed in detail in Chapter 4 under methodology.

1.13.3 Phase 3: Strategies development and validation

Phase 3 was the strategies development phase through the integration of the Phase 1 findings and Phase 2 results. Strategy is about managing the future, which is frequently uncertain (Grundy 2017:35). According to Grundy (2017:35), strategy is all about choice, even though there may be a large number of strategic options with high scores. Integration in exploratory research means using qualitative insights to create a new quantitative data collection instrument or intervention (Creswell & Plano Clark 2018:139). According to Creswell and Plano Clark (2018:3), integrating findings from qualitative and quantitative results maximises strengths and minimises weaknesses for each type of data. Through joint display integration, the researcher formulated strategies based on the findings accruing from the qualitative phase and the interpretation of the quantitative phase results. The researcher also used logical reasoning (inductive and deductive reasoning) in order to develop strategies for same-day ART initiation, trace HIV patients who are lost to follow-up, and develop viral suppression monitoring mechanisms. Furthermore, literature and a theoretical framework were used for strategies development.

In this study, the researcher utilised logical reasoning processes to formulate strategies for same-day ART initiation, tracing patients who are lost to follow-up, and viral suppression monitoring in HIV care and treatment. Logical reasoning is a problem-solving approach that leverages experience, intellect, and formal thought systems to devise solutions for various issues (Polit & Beck 2017:30). The strategies developed employed both inductive and deductive reasoning as part of the scientific approach. Additionally, literature and a theoretical framework underpinning this study were used to create these strategies. Health experts working on the HIV programme at the Federal Ministry of Health and the Regional Health Bureau validated the developed strategies using the Modified Delphi technique. The details of the strategy development and validation steps are discussed in Chapters 4 and 7.

A Modified Delphi technique was used in strategies validation. The Delphi technique is one of the subjective-intuitive methods of foresight (Niederberger & Renn 2023:5). According to Niederberger and Renn (2023:5), the Modified Delphi technique is based on structured consultations and uses the intuitively available information of the respondents, who are usually experts. The strategies validation participants in this study were

purposefully selected. These were health experts working at the regional and federal levels of the Ministry of Health in the HIV programme. The validation of strategies was based on validation criteria that included clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability (refer to Annexure 40 for strategies validation criteria) (Jira 2022:206).

Selected participants were contacted by phone requesting voluntary participation in this strategies validation, and informed consent was received from each expert (refer to Annexure 48 for the informed consent form for strategies validation). Participants who agreed and signed an informed consent form were invited to review and validate the developed strategies after the key findings were presented and the purpose of validation was explained to them (refer to Annexure 41 for startegies validation participant profiles). Furthermore, the developed strategies were reviewed by the supervisor. The detailed steps followed in strategies development and validation were discussed in Chapters 4 and 7.

1.14 ETHICAL CONSIDERATIONS

Polit and Beck (2017:1017) define ethics as a methodical system of professional standards, moral values, legal norms, and social obligations that regulate the researcher’s conduct and treatment of participants. According to Polit and Beck (2017:231), ethics in research involves not only the protection of human and animal subjects but also the protection of the public's trust. This study adhered to all research ethical procedures. Details of the applicable ethical considerations are discussed more elaborately in Chapter 4.

1.15 SCOPE AND LIMITATIONS OF THE STUDY

This study was conducted at two selected healthcare facilities in Oromia Regional State, Ethiopia. The results and findings could be applicable to all healthcare facilities in the country providing same-day ART initiation services. The strategies developed could also be useful resource material that could be implemented at all healthcare facilities providing same-day ART services.

The study was conducted during the COVID-19 pandemic on level 4, which posed limitations in face-to-face data collection. The quantitative phase of this was retrospective and might introduce recall bias, while the qualitative phase's reliance on self-reported data could create social desirability bias. Incomplete smart care database information, challenges accessing patient folders, external factors like strategies changes, and a cross-sectional design hindered tracking longitudinal patient outcomes. Furthermore, due to pandemic restrictions, the study lacked involvement from religious leaders and community associations, highlighting the need to consider these limitations for a comprehensive understanding and to guide future research on same-day ART initiation benefits and challenges.

1.16 STRUCTURE OF THE THESIS

The research is structured in eight chapters as follows:

Table 1. 1: Structure of the thesis

Chapter	Title	Content description
1	Orientation to the study	The orientation to the study comprised the introduction, background to the research problem, the research statement, the aim of the study, its objectives, and a definition of key terms.
2	Literature review	Literature related to the study was reviewed.
3	Theoretical framework	The chapter presents the detailed theoretical framework of the study.
4	Research design and methods	The chapter on research design and methodology focused on research methodology, design, population, sampling, data collection methods, data analysis protocol, reliability and validity of the research design and the data collection instrument, and ethical considerations.
5	Phase 1: Qualitative approach	The findings of Phase 1 were analysed, presented, and interpreted according to the set of objectives.
6	Phase 2: Quantitative approach	The results of Phase 2 were analysed, presented, and interpreted according to the set of objectives.
7	Phase 3: Strategies development and validation	Strategies were developed through the integration of Phase 1 findings and Phase 2 results, a literature review, and a logical reasoning approach. To ensure the quality and effectiveness of these strategies, they underwent a validation process that involved

Chapter	Title	Content description
		soliciting feedback from health experts working at the federal and regional levels of the HIV programme.
8	Conclusion, recommendations and limitations	This chapter summarises the integrated findings, conclusions, recommendations, and limitations of the researcher in relation to the problem statement and objectives of the study.

1.17 SUMMARY

The current chapter presents an overview and introduction to the study in the context of background information about the research topic, the problem statement, and the purpose of the study, as well as the research purpose, objectives, and questions. The chapter further presented the significance of the study, definitions of terms, the theoretical framework, the research setting, as well as the research paradigm, design, and methodology.

Furthermore, the chapter presented an outline of the ethical considerations, the scope and limitations of the study, as well as the overall structure of the thesis. It is worth stating that all aspects presented in this chapter are further presented in varying degrees of detail throughout the ensuing chapters. The next chapter presents and discusses the literature reviewed for this study.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

The orientation to the study was discussed in Chapter 1, leading to the study of relevant literature to be discussed in Chapter 2 of the study. A literature review is an overview of the available research for a specific scientific topic and summarises existing research to answer questions, provide context for new research, or identify important gaps in the existing body of literature (Hempel 2020:3). The literature review helped the researcher determine how best to contribute to already existing evidence and identify gaps or inconsistencies in a body of other research related to this study. Furthermore, according to Polit and Beck (2017:143), a literature review also facilitates researchers' interpretations after the analysis of their findings. Beech (2015:66) also emphasised the need for literature reviews to be related to the project rather than being a descriptive state. Beech (2015:66) further explained that the literature review should be more than an output literature search; it needs to 'add value' by critiquing and commenting on both negative and positive aspects of the searched literature.

The literature review in this study served to identify any gaps in the existing pool of knowledge on both qualitative and quantitative aspects of same-day ART initiation, including benefits and challenges related to same-day ART initiation. Further strategies available for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms were assessed. The literature review was guided by the research questions and objectives. To ensure that the literature review was as comprehensive as possible, many key words were used while searching for literature, such as key words covering the main concepts related to the research topic, specifically HIV, same-day ART initiation, retention in HIV care, lost to follow-up, viral suppression, and strategies used for same-day ART initiation. The sources used for the literature review were searched through UNISA electronic articles, eBooks, EBSCOhost, Google Scholar, PubMed, and the UNISA regional library in Ethiopia, and the language for searching was English. All peer-reviewed articles, UNISA student theses, reputable websites, government published documents, healthcare facility databases and research books were included. For articles, the most recent ones were used, typically not older than five years, except for a few key articles essential for the statement of the problem. Regarding research books, there was no limitation on the publication year, but the latest editions were used whenever possible.

The exclusion criteria for the literature review included non-peer-reviewed articles, non-UNISA student theses, unreliable websites, and articles older than five years that were generally excluded, except for a few essential to the statement of the problem. Additionally, studies with incomplete data, irrelevant to the topic, or conducted in significantly different contexts from the study's focus were excluded. After a thorough reading of these sources, summary notes were compiled using Atlas ti 8. Similar themes were summarised and organised to fit the research questions and objectives.

2.2 HUMAN IMMUNODEFICIENCY VIRUS

2.2.1 Description of HIV

The AIDS Info Glossary of HIV-Related Terms (2021:76) defines HIV as a retrovirus that occurs in two types: HIV-1 and HIV-2. According to the AIDS Info Glossary, HIV is a related term (2021:79) in the Human Immunodeficiency Virus and is the virus that causes AIDS, which is the most advanced stage of HIV infection. Acquired Immunodeficiency Syndrome (AIDS) is a disease of the immune system caused by the infection of HIV that destroys the CD4 T lymphocytes (CD4 cells) of the immune system, leaving the body vulnerable to life-threatening infections and cancers (AIDS Info Glossary 2021:2).

According to the World Health Organization consolidated guidelines on person-centred HIV patient monitoring and case surveillance (World Health Organization 2017: V), advanced HIV disease is defined as a CD4 cell count of 200 cells/mm3 or a WHO clinical stage 3 or 4 event at the time of presentation for care or diagnosis. Kolb (2018:1730) also explained that the human immunodeficiency virus (HIV) attacks and damages the cells of the immune system that enable the body to fight infections. According to Kolb (2018:1730), when HIV progresses, the CD4+ T cells, which are a certain type of white blood cell, are severely diminished, resulting in an individual with HIV to acquired immune deficiency syndrome (AIDS).

2.2.2 Mode of HIV transmission

HIV is a communicable disease transmitted from person to person through the exchange of bodily fluids (Bornstein 2018:1048). According to Kolb (2018:1731), the spread of HIV today is most heavily correlated with IV main contributors, namely, drug use, sex workers,

gay men, and transgender women. According to Bornstein (2018:1048), HIV is transmitted through bodily fluids, with the transmission routes including unprotected sex, mother-to-child transmission during pregnancy and childbirth, and blood transfusion.

2.2.3 HIV prevention methods

Different preventative methods are used to protect against HIV transmission, such as post-exposure prophylaxis (PEP), combination HIV prevention, behavioural risk reduction, condom use, male circumcision, treatment of curable sexually transmitted infections, and the use of antiretroviral medications for pre-exposure prophylaxis (Federal Ministry of Health Ethiopia 2018:30). Antiretroviral therapy (ART) not only reduces morbidity and mortality for persons with HIV but also plays a role in preventing the virus from being sexually transmitted when the viral load is consistently suppressed to <200 copies/m (Panel on Antiretroviral Guidelines for Adults and Adolescents 2019:59).

2.2.4 HIV treatment

Antiretroviral therapy (ART) is a drug used for the treatment of HIV infection, helping to reduce HIV-associated morbidity and mortality as well as making the chronic HIV condition manageable. Antiretroviral therapy refers to the use of a combination of three or more ARV drugs for the treatment of HIV infection (World Health Organization 2017: V). ART for HIV treatment typically consists of three antiretroviral (ARV) drugs formulated from at least two different HIV drug classes (AIDS Info Glossary 2021:10). According to the US Department of Health and Human Services adult and adolescent ART guidelines (Panel on Antiretroviral Guidelines for Adults and Adolescents 2020:66), more than 30 antiretroviral (ARV) drugs in seven mechanistic classes are approved for the treatment of HIV infection, namely: nucleoside/nucleotide reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), protease inhibitors (PIs), integrase strand transfer inhibitors (INSTIs), a fusion inhibitor, a CCR5 antagonist, and a CD4 T lymphocyte (CD4) post-attachment inhibitor.

2.3 GLOBAL HUMAN IMMUNODEFICIENCY VIRUS EPIDEMIOLOGY

Since the start of the epidemic, 85.6 million [64.8 million–113.0 million] people have become infected with HIV, and 40.4 million [32.9 million–51.3 million] people have died

from AIDS-related illnesses (UNAIDS World AIDS Day 2023:1). According to UNAIDS World AIDS Day (2023:), in 2022, 39 million [33.1 million–45.7 million] people globally were living with HIV. During the same year, 1.3 million [1 million–1.7 million] people became newly infected with HIV, and 630,000 [480,000–880,000] people died from AIDS-related illnesses.

At the deadline, at least eight countries in a variety of geographic, epidemic and socioeconomic settings had fully achieved the targets, and another 11 had reached 73% viral load suppression among all people living with HIV. The average performance in eastern and southern Africa, the region most affected by HIV, nearly achieved the targets, and 74% of people living with HIV in western and central Europe and North America had suppressed viral loads (UNADS Data 2021:5). According to the UNAIDS data (2021:5), the global roll-out of HIV treatment has saved millions of lives: an estimated 16.6 million [11.7 million–24.2 million] AIDS-related deaths have been averted over the last two decades, including a 47% decline in AIDS-related mortality since 2010 and 1.5 million people newly infected with HIV in 2020.

According to the UNAIDS World AIDS Day Report (2021:12), at the end of June 2021, approximately 28.2 million people were receiving antiretroviral therapy. Despite a decline in new HIV infections and deaths, the world is still not on track to eliminate AIDS as a public health threat by 2030 (refer to Figure 2.1). In 2021, 74% (57-90%) of adults were receiving treatment for people living with HIV globally (refer to Figure 2.1). According to the UNAIDS Data (2021:69), in 2020, 84% (67-98%) of HIV-positive people were aware of their status, and of those, 73% (56-88%) knew of their HIV status and 66% (53-79%) were virally suppressed (Figure 2.2). The discussion on global human immunodeficiency virus epidemiology will focus on the epidemiology of specific countries around the world, beginning with international countries and moving on to African countries, as discussed below.

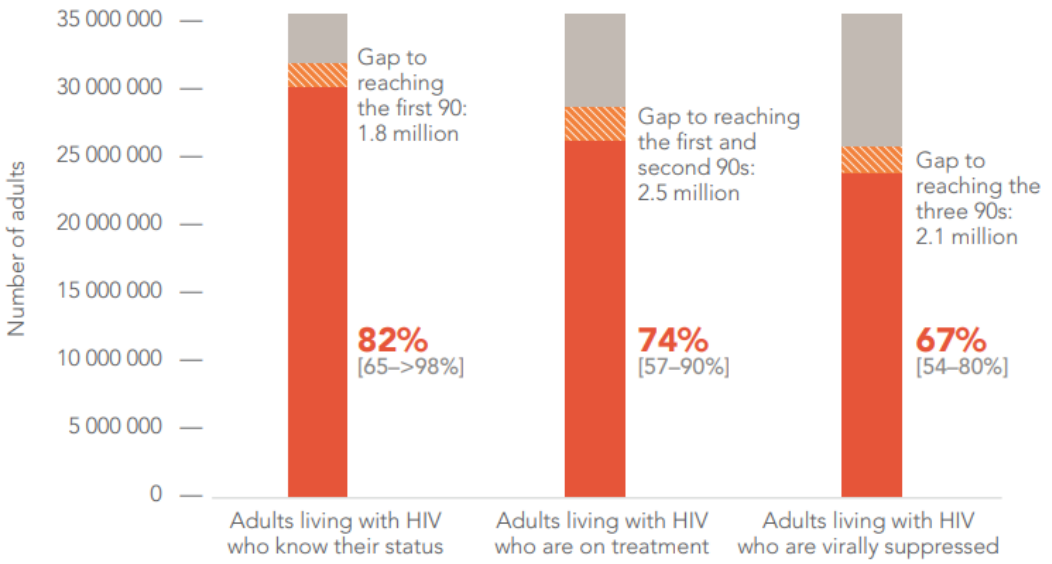


Figure 2. 1: Global Adult the three 95 status, 2021

(Source: UNAIDS special analysis, 2021 https://www.unaids.org/sites/default/files/media_asset/JC3032_AIDS_Data_book_2021_En.pdf)

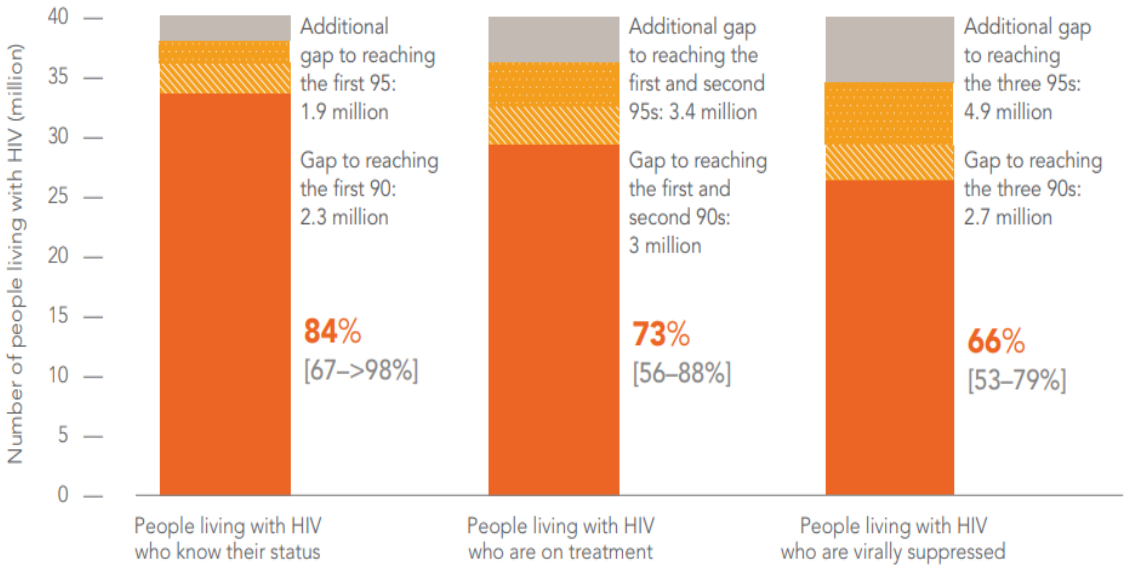


Figure 2. 2: Global HIV testing and treatment cascade 2020

(Source: UNAIDS 2021).

2.3.1 Human immunodeficiency virus epidemiology in international countries

2.3.1.1 Human immunodeficiency virus epidemiology in the United States of America

Since the first HIV cases were reported in the United States in June 1981 by clinicians in New York, Los Angeles, and San Francisco, biomedical research has brought to light cases of the disease that would later become known as AIDS (Gibbons & Fauci 2019:1). According to Gibbons and Fauci (2019:1), the median survival of a person with AIDS at the time of its discovery was only one to two years, whereas today, HIV survival can be measured in decades and even near-normal life expectancies. This is because the introduction of safe and effective antiretroviral therapy (ART) has been transformative, dramatically extending people's lives and improving their health.

In 2022, the diagnosed infections attributed to male-to-male sexual contact accounted for 65% of all adult and adolescent HIV infections, including 7% infections attributed to male-to-male sexual contact and injection drug use, accounted for about 1 in 14 HIV all diagnosed HIV infections in the United States (Centers for Disease Control and Prevention 2024:43). According to the United States of America HIV statistics (2019:1), an approximate 1.1 million people in the United States were living with HIV in 2018, with nearly 14% (1 in 7) people unaware of their HIV status. According to US government HIV statistics (2019:1), HIV continues to have a disproportionate impact on certain populations, particularly racial and ethnic minorities and gay and bisexual men, who accounted for 69% of all HIV diagnoses in the US and 86% of male diagnoses. HIV diagnoses are not evenly distributed across states and regions, with data from 2022 showing that the South accounted for 86.4% of new HIV diagnoses in the United States of America, the West (85.6%), the Northeast (92.3%), the Midwest (84.7%), and the U.S. dependent areas (1%). (Centers for Disease Control and Prevention 2024:31).

2.3.1.2 Human immunodeficiency virus epidemiology in Brazil

Brazil is a Latin American and Caribbean country with a total population of 209.5 million people in 2018 (World Health Organization 2020:1). The HIV pandemic hit this vast,

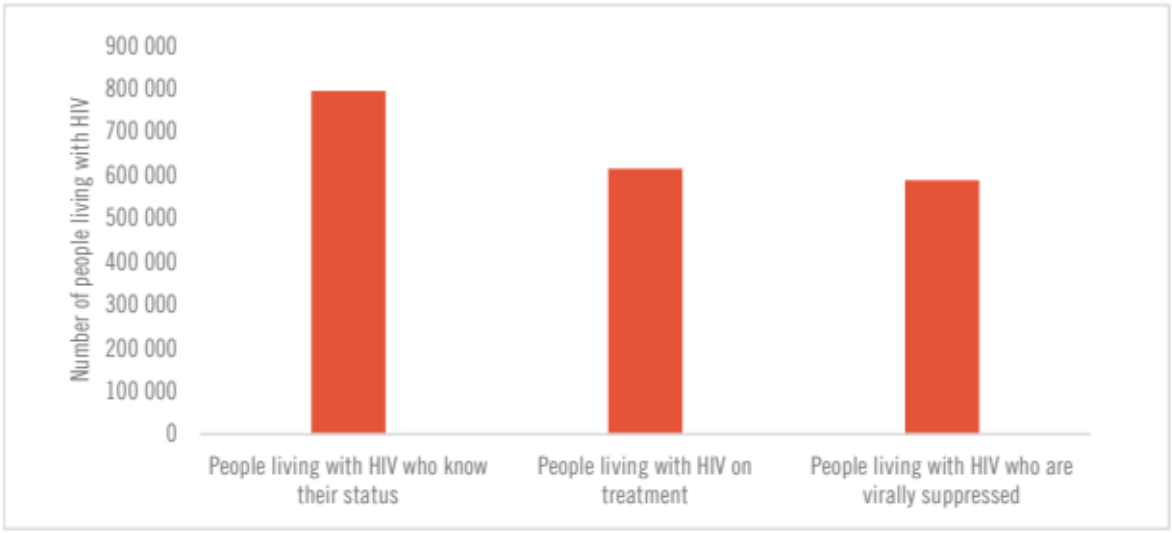
developing South American country hard in the 1980s; its first AIDS case was identified in 1980. In Brazil, an estimated 900,000 people were infected with HIV (World Health Organization 2020:2). According to the UNAIDS Refernce (2022:211), 88% of people living with HIV are aware of their status, 73% are receiving ART, and 69% have their viral load suppressed.

In 2018, approximately 594,000 (61%) of PLWHIV in Brazil were receiving ART (Brasil Ministério da Sade 2019:19). The Brazilian Ministry of Health's *"treat all*" policy has in recent years reduced the number of notified HIV cases in the country, resulting in a drop in AIDS-related deaths from 5.5 per 100,000 in 2014 to 4.8 per 100,000 in 2017. Following the implementation of universal treatment, identified AIDS cases in Brazil decreased from 42,184 (2012) to 37,791 (2017), and AIDS detection rates decreased by 15.7%, from 21.7 (2012) to 18.3 (2017) cases per 100,000 inhabitants (Brasil. Ministério da Sade 2019:19).

2.3.1.3 Human immunodeficiency virus epidemiology in Russia

HIV first appeared in Russia in the late 1980s, and the numbers were relatively low until the use of injection drugs, which over the next decade increased sharply due to the emergence of drug trafficking between Central Asia, Afghanistan, and Europe (Twigg 2019:2). According to research conducted in Russia, as of June 2018, 1.3 million people had been infected, of whom 294,000 were dying. More than 1% of the country's adult population was HIV-positive, with 3.3% being men aged 35–39. Furthermore, Twigg (2019:1) findings showed that HIV was a leading cause of premature mortality for 16,000 Russians in the first half of 2018, and the Russian Federation (RF) was estimated to have the highest number of HIV-1 infected people in 2017.

According to the Global Information and Education on HIV (2019:1), Russia is progressing towards 90-90-90. As of September 2018, 81% of people living with HIV are aware of their HIV status, 45% of people living with HIV know their status and are on ART treatment, and 75% of those on treatment are virally suppressed carriers. However, only 36% of estimated HIV patients are on ART, and only 27% are virally suppressed carriers. The latest data from UNAIDS Reference (2021:382) indicates that Russia's progress toward the 95-95-95 targets is not expressed in percentages. However, the numbers of people who know their status, are on ART treatment, and are virally suppressed are available (refer to Figure 2.3).



All ages	...% [...–...%]	...% [...–...%]	...% [...–...%]
	794 220	615 099	587 870

Figure 2. 3: Russia progress toward 95:95:95 in 2020

(Source: UNAIDA Refernce 2021)

2.3.1.4 Human immunodeficiency virus epidemiology in China

China is one of the countries that has made remarkable progress in HIV testing globally, increasing its testing efforts from 3.4% to 14.5% of the total population, with the number of new cases identified increasing from 56,362 to 134,512 cases between 2008 and 2017 (UNAIDS 2019:4). According to the UNAIDS (2018:4), global AIDS monitoring China country progress report, China declared in 2016 that it would provide ART to people living with HIV who were willing to receive treatment without having any contraindications.

Furthermore, the Global AIDS Surveillance China Country Progress Report (2018:4) showed that the policy increased ART coverage among people living with HIV from 67.0% in 2015 to 80.4% in 2017. As of the end of 2017, the number of people on ART in China had risen to 609,829, with 131,593 newly added in 2017. According to the UNAIDS (2018:2), China progress report, the number of adults and children receiving ART at the end of 2018 had reached 718,000. According to the UNAIDS (2018:4) China country fact sheet, the HIV prevalence is 0.2% for sex workers, 6.9% for men who have sex with other men, and 5.9% for people who inject drugs.

According to China's Progress Report on the Implementation of the 2030 Agenda for Sustainable Development (Ministry of Foreign Affairs of the People's Republic of China 2019:16), the proportion of HIV patients and patients eligible for treatment receiving antiretroviral therapy reached 83.4%, realising a treatment success rate of more than 90%. The rate of China's HIV transmission from mother to child has dropped to 4.5%. According to a study conducted in China to assess China's progress towards the 90-90-90 target (Zhao, Han, Ye Ma, & Li 2019:6), at the end of 2018, 68.9% of people living with HIV knew their HIV status, 83.4% were on ART treatment, and 90% of the people were virally suppressed. According to Zhao et al (2019:6), there were an estimated 81,000 new infections in China in 2018, with a national prevalence of 0.090% (0.079%-0.101%). Zhao et al (2019:6) further state that the number of people receiving ART increased from 295,358 in 2014 to 718,499 in 2018. The latest data from UNAIDS Reference (2021:181) shows that China's progress towards the 95-95-95 targets is not given in percentages. However, it reports that 1,053,026 people know their HIV status, 978,138 are on antiretroviral therapy, and 939,734 are virally suppressed.

2.3.1.5 Human immunodeficiency virus epidemiology in Australia

During 2018, an estimated 28 180 (24 610 – 31 840) people were living with HIV in Australia, with an estimated majority (90%) or 25 490 being diagnosed (22 500 – 28 510). Transmission of HIV in Australia continues to occur primarily through sexual contact between men, with 83% of newly acquired cases of HIV infection in Australia during the period of 2009 to 2018 involving men who reported sexual contact with other men (Kirby Institute, University of New South Wales Sydney & Australian Red Cross Lifeblood 2019:40).

Among HIV cases diagnosed overseas and confirmed in Australia, 37% were detected in New South Wales, 23% in Queensland, and 19% in Victoria. According to the Kirby Institute, University of New South Wales Sydney and Australian Red Cross Lifeblood (2019:48), there were 963 new HIV diagnoses in 2017, the lowest number since 2010, with a 7% decline in new HIV infections over the last five years and a 5% decline between 2016 and 2017. The Kirby Institute, University of New South Wales Sydney and Australian Red Cross Lifeblood (2019:40), mention that 61% of HIV diagnoses in 2017 were attributed to heterosexual sexual interaction, of whom 54% were born in Australia, 13%

born in Sub-Saharan Africa, and 13% born in Southeast Asia.

According to the Australia Federation of AIDS (2019:2), of the estimated 895 people living with HIV in Australia, 97% were actively taking ART treatment, and 95% of patients on antiretroviral therapy had a suppressed viral load in 2017. Furthermore, according to the Australia Federation of AIDS (2019:1), the HIV prevalence proportion of all people living with HIV in Australia in 2017 was estimated to be 0.14%, which is low when compared to other high-income and Asia Pacific countries. According to the Australia Federation of AIDS (2023:2), as of 2021, 91% of individuals living with HIV were aware of their status, among whom 92% were on ART treatment, and 98% achieved viral suppression.

2.3.2 Human immunodeficiency virus epidemiology in Africa

Africa is the most affected region, with 25.7 million people reported in 2018 to be living with HIV, 19.6 million PLHIV in East and Southern Africa, and 6.1 million PLHIV in West and Central Africa over the same period of 2018 (World Health Organization 2019:8). According to the World Health Organization (2019:7), 105 000 new HIV infections were reported in the African Sub-Saharan region in 2018, while 470 000 people died from AIDS-related illnesses in the African Region. This represented a 40% decrease since 2010, with 16.3 million people receiving treatment in the African Region in 2018. This equates to 64% of the total estimated number of HIV patients with access to antiretroviral therapy. According to the World Health Organization (2019:5), in Africa, 81% of people living HIV are aware of their HIV status, 64% of PLHIV have access to ART, and 52% have a suppressed viral load while on treatment. The epidemiology of human immunodeficiency virus in Eastern, Southern, Western, and North Africa is discussed below.

2.3.2.1 Human immunodeficiency virus epidemiology in Eastern and Southern Africa

Eastern and Southern Africa have been particularly hard hit by HIV (UNAIDS Reference 2023:114). According to the UNAIDS Reference (2023:115), In Eastern and Southern Africa, there has been a 57% decrease in new HIV infections and a 58% decrease in AIDS-related deaths since 2010. The region has 20.8 million [17.4 million–24.5 million] people living with HIV. In 2022, there were 500,000 [370,000–670,000] new HIV infections

and 260,000 [200,000–370,000] AIDS-related deaths. Among those living with HIV, 92% [77–>98] know their HIV status, 83% [69–97] are on treatment, and 77% [65–91] are virally suppressed (refer to Figure 2.4).

The gap between reaching the first 90 and the second 90 was 1.1 million people, with an additional 3 million people requiring treatment to reach the first and second 90s. To achieve all three 90s, an additional 3 million people living with HIV needed to achieve viral suppression (UNAIDS 2019:191). Anti-retroviral therapy (ART) has been gradually introduced in Sub-Saharan Africa over the last decade. According to UNAIDS, ART coverage in Eastern and Southern Africa increased from 24% in 2010 to 67% in 2018, reaching a total of 13.8 million of the region's estimated 20.6 million HIV-positive people (UNAIDS AIDS Info 2019:1). Among the countries in the region, Ethiopia and South Africa were thoroughly discussed.

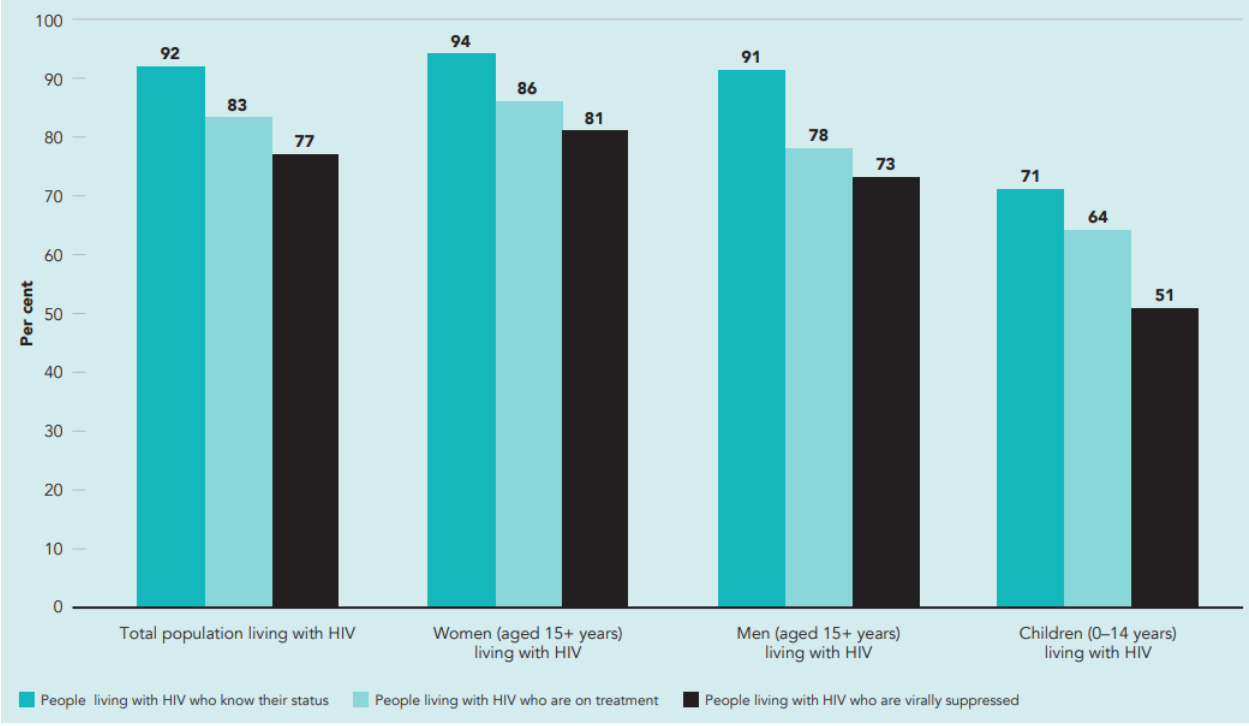


Figure 2. 4: HIV testing and treatment cascade, by age and sex, eastern and southern Africa, 2022
(Source: UNAIDS Reference 2023:119).

2.3.2.1.1 Human immunodeficiency virus epidemiology in Ethiopia

Ethiopia has a federal government and is divided into nine national regional states and two city administrations, each with 840 districts. Six years' prior, the country's population was estimated to be around 84 million, with 83% of the population living in rural areas (Federal HIV Prevention and Control Office 2014:2). However, the World Bank (2019:1) estimated Ethiopia's population to be 108.4 million people divided among approximately 80 ethnic groups, with 27% of the population living below the World Bank-defined poverty line of $1.90 per day.

Since the first AIDS cases were identified in 1984, the country has begun to respond to the epidemic in a variety of ways. The initial response was a health-sector response, but after the HIV policy was approved in 1998, the country adopted a multi-sectoral approach to combating the HIV epidemic. According to the Ethiopian Federal Ministry of Health Investment Case Approach (FHAPCO 2014:2, Federal Ministry of Health Ethiopia 2018:1), Ethiopia is implementing HIV policy in accordance with epidemic dynamics and recent evidence of effective interventions and technologies. From 2005 to 2014, three consecutive five-year strategic frameworks were developed and implemented to intensify the country's multi-sectoral response to HIV.

Furthermore, based on lessons learned from previous years (2005–2014), the HIV response in Ethiopia developed a strategic approach that targeted investment case approaches to high impact interventions, improving efficiency, and increasing domestic resources for national responses, all of which have become critical elements in achieving high infection aversion and saving lives (FHAPCO 2014:2). Accordingly, that is why this particular HIV investment case was created, to guide the 2015-2020 national response and pave the way for the country to achieve the three 90's and end the AIDS epidemic by 2030 (FHAPCO 2014:2).

The incidence and prevalence of HIV infection in Ethiopia have decreased over time, and the estimated number of people living with the virus in 2021 was 617,921 (Ethiopia Public Health Institute 2021:3). The HIV epidemic in Ethiopia varies by gender, geographic area, and population group. HIV prevalence exceeds 1% in seven of the nine regional states and two city administrations. Looking at HIV prevalence by region, Gambella has the highest rate at 4.8% of people living with HIV, followed by Addis Ababa at 3.4%, Dire

Dawa at 2.5%, and Harari at 2.4% (FHAPCO 2018:3). The Ethiopian Public Health Institute (Ethiopia Public Health Institute & ICAP at Columbia University 2020:64) formulated a population-based HIV impact assessment national survey in urban Ethiopia, which was conducted between October 2017 and April 2018, revealing that the prevalence of HIV among people aged 15–64 ranges from 0.8% to 5.7% across regions (refer to Figure 2.5).

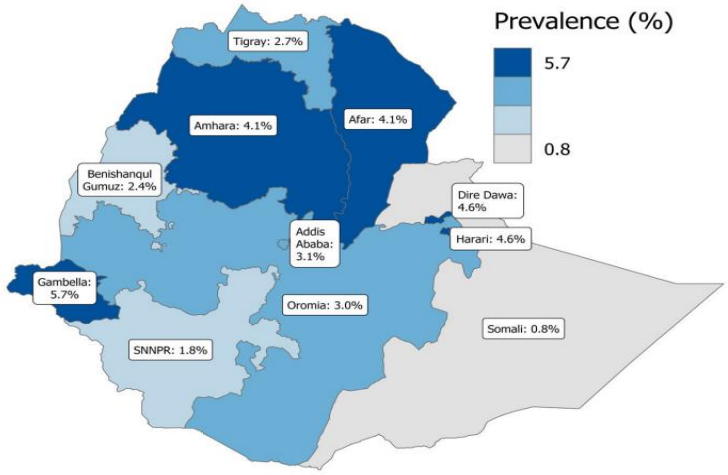


Figure 2. 5: Ethiopia HIV prevalence in urban area among regions between 15-64 years (Source: Ethiopian Public Health Institute 2020:64)

According to an Ethiopian study on the HIV burden, an estimated 36,990 new HIV infections for all ages and sexes were discovered in 2016 (Deribew, Biadgilign, Deribe, Dejene, Tessema, Melaku, Lakew, Amare, Bekele, Abera & Dessalegn 2019:861). In 2021, around 31,086 patients were newly enrolled in ART (Ethiopia's country operational plan 2022:8). According to Deribew et al (2019:861), the HIV incidence rate in Ethiopia fell 77% between 1990 and 2016, from 178/100,000 to 40/100,000 people. Ethiopia also reduced the number of HIV-related deaths from 83, 000 in 2000 to 15,600 in 2017, demonstrating that the country was on track to meeting its global targets by 2020 and 2030 (Federal Ministry of Health Ethiopia 2018: I).

According to the UNAIDS Global Update (2023:135), in 2022, 84% of people living with HIV knew their status, 83% of those who knew their status were receiving treatment, and 81% of those on treatment were virally suppressed. According to Ethiopia's country operational plan (2019:5), data indicate that Ethiopia is close to achieving HIV epidemic control, but there are still pockets that need to be addressed, and 460,565 people received ART in 2018. Ethiopia's country operational plan (2022:8) mentions that in 2021,

despite 31,086 patients newly enrolled in antiretroviral therapy (ART), the reported number of patients currently on ART by the end of the same year had dropped by 48,287 due to incomplete reporting from conflict-affected regions in Northern Ethiopia. These results may not only be due to the reported conflict in the affected regions but also due to a lack of follow-up with the patients.

2.3.2.1.2 Human immunodeficiency virus epidemiology in South Africa

South Africa is an upper-middle-income country with Africa's second-largest economy. In 2019, the mid-year population of South Africa was expected to be 58.8 million (Statistics South Africa 2019:8). According to South Africa Statistical Release (2019:8), the black African population in the country is 47.4 million, accounting for approximately 81% of the total South African population, with the white population estimated to be 4.7 million, the coloured population 5.2 million, and the Indian/Asian population 1.5 million. More than half of the population (30 million) is female. In South Africa, the estimated HIV prevalence for 2019 was 13.5% of the total population.

South Africa's total HIV population increased from an estimated 4.64 million in 2002 to 7.97 million in 2019 (Statistics South Africa 2019:6). The Global AIDS Update (UNAIDS 2019:16), reported that South Africa manages the world's largest antiretroviral therapy programme, with the goal of providing treatment, suppressing viral loads, and ensuring the health of 19% of the world's HIV patients. According to Global Information and Education on HIV (2019:1), in 2018, 7 700 000 people were living with HIV in South Africa; 240 000 people were newly infected with HIV; 71 000 people died from an AIDS-related illness, and HIV prevalence among adults (15-49 years) living with HIV was 20.4%. The national estimate of HIV prevalence in South Africans of all ages was 14.0% (95% CI: 13.1–15.0), translating to an estimated 7.92 (95% CI: 7.1–8.8) million people living with HIV (Zuma, Simbayi, Zungu, Moyo, Marinda, Jooste, North, Nadol, Aynalem, Igumbor & Dietrich 2022:5). According to the UNAIDS Global Update (2023:155), in 2022, 94% of people living with HIV knew their status, 75% of those who knew their status were receiving treatment, and 69% of those on treatment were virally suppressed.

According to the 5th South African population-based HIV survey (Human Sciences Research Council 2018:1), approximately 7.9 million South Africans of all ages were living with HIV (PLHIV) in 2017. Furthermore, in South Africa, the HIV prevalence among adults

aged 15 to 49 years is 20.6%, 26.3% among females, and 14.8% among males (5th HSRC 2018:2). HIV prevalence is 16.6% among black Africans, 5.3% among coloured people, 1.1% among white people, and 0.8% among Indians and Asian. The HIV prevalence varies by province, with KwaZulu-Natal having the highest prevalence (27%), and the Western Cape having the lowest (12.6%) (refer to Figure 2.6).

South Africa's ART programme has since expanded to become the world's largest, with an estimated 4.5 million adults receiving ART in 2018 (Republic of South Africa 2019:15). The National Commitments and Policy Instrument (NCPI) narrative report of South Africa states that the region has the highest number of HIV-positive people in the world, with 7.5 million infected with HIV (Republic of South Africa 2019:1). South Africa's performance against the UNAIDS 90-90-90 strategy for control of the HIV pandemic is 93-78-90, meaning that 93% of people living with HIV knew their status, 78% of people living with HIV are on anti-retroviral treatment (ART), and 90% of the estimated proportion of patients on ART were virally suppressed at 12 months (Republic of South Africa 2021:18).

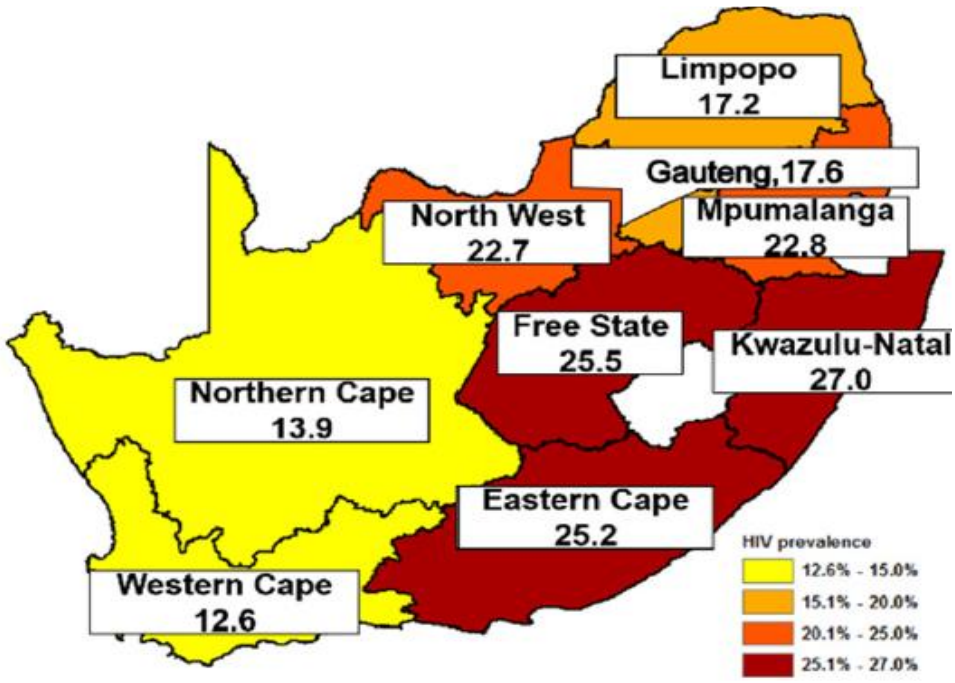


Figure 2. 6: South African HIV prevalence in urban area among regions between 15-64 years (Human Sciences Research Council 2018:3)

2.3.2.2 Human immunodeficiency virus epidemiology in Western and Central Africa

According to the 2019 UNAIDS Reference (2019:78), an estimated 5 million people in Western and Central Africa were living with HIV in 2018. Furthermore, the UNAIDS Report (2019:78) showed that the proportion of people who were aware of their HIV status increased from 51% in 2015 to 64% in 2018. HIV testing and treatment were available to 51% of people living with HIV in 2018, up from 37% in 2015. In 2018, the estimated percentage of HIV-positive people in the region with suppressed viral loads was 39%. Progress towards the 95-95-95 targets in West and Central Africa is slow, with 64% of people knowing their HIV status, 54% of people living with HIV receiving treatment, and 51% experiencing viral suppression among people living with HIV. Three countries in the region, Cameroon, Côte d'Ivoire, and Nigeria, account for 60% of new HIV infections and 54% of AIDS-related deaths each year (UNAIDS Reference 2019:79).

2.3.2.2.1 Human immunodeficiency virus epidemiology in Nigeria

Nigeria is one of the countries in the world with the highest number of people living with HIV, with a current national HIV prevalence of 1.4% for people aged 15 to 49 and an estimated 1.9 million people living with HIV in the country (National Agency for the Control of AIDS 2019:9). According to the revised national HIV strategic framework 2019-2021 (2019:11), female prevalence is estimated to be 1.9%, while male prevalence is estimated to be 0.9%.

According to the Nigerian country operational plan (2021:16), approximately 1,492,154 people were receiving ART treatment at the end of 2021, roughly translating to half of the estimated number of PLHIV in the country that receive ART. The UNAIDS Nigeria country (2019:1), HIV overview confirms that 130 000 people were newly infected with HIV in Nigeria, in 2018, 53 000 patients died from an AIDS-related illness, and there has been progress in the number of AIDS-related deaths since 2010, with a 26% decrease from 72 000 to 53 000 deaths between the years 2010 and 2018. According to UNAIDS References (2021:151), in Nigeria, the number of new HIV infections has decreased by 26%; 90% of people living with HIV knew their status; 86% were on treatment; and 72% were virally suppressed (refer to Figure 2.7).

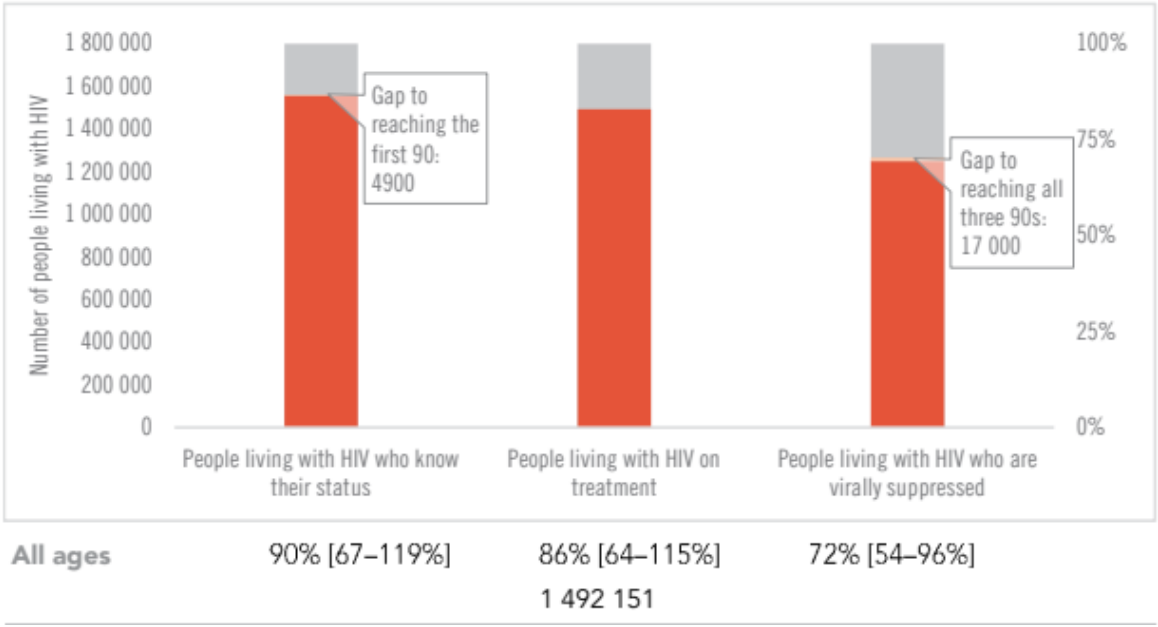


Figure 2. 7: **Nigeria progress toward 95:95:95 in 2020**
(Source: UNAIDS References 2021).

2.3.2.3 Human immunodeficiency virus epidemiology in Middle East and North Africa

In the Middle East and North Africa, an estimated 240,000 people are infected with HIV (UNAIDS 2019:289), and treatment coverage among HIV-positive people in this region is 32%, the lowest of any region, making it one of two in the world where the number of AIDS-related deaths is increasing, with a 9% increase since 2010. In 2018, approximately 79 000 people received antiretroviral therapy, 47% of people living with HIV knew their status, 32% were on treatment, and an estimated 27% had a suppressed viral load, according to the progress of three 90 (UNAIDS 2019:290). HIV epidemiology in Morocco is discussed as one of the countries in North Africa.

2.3.2.3.1 Human immunodeficiency virus epidemiology in Morocco

Morocco is a North African country that was recorded to have a population of 36 million people in 2018 (World Health Organization 2020:1). According to the UNAIDS Morocco country (2019:1) HIV overview, in 2016, there were 1000 (1000 - 1500) new HIV infections and 1000 (500 - 1000) AIDS-related deaths in Morocco. Sex workers had an HIV prevalence of 1.3%; gay men and other men who have sex with other men had an HIV

prevalence of 5.7%; people who inject drugs had an HIV prevalence of 7.9%; and prisoners had an HIV prevalence of 0.5%, making them the key populations most affected by HIV in Morocco.

Morocco's new National Strategic Plan 2017-2021 commits Morocco to accelerating the HIV response, aiming to reduce new infections among key and vulnerable populations, eliminate HIV transmission from mother to child, reduce AIDS-related deaths, confront discrimination, and strengthen governance for an effective response (UNAIDS Morocco country HIV overview 2019:1). A study that was conducted on mapping new HIV infections in Morocco showed that clients of FSWs contributed the most to HIV incidence, with 25%, followed by MSM (22%), and stable heterosexual couples (22%) (Kouyoumjiana, Rhilanib, Latifc, Kettanic, Chemaitellya, Alamib, Bennanic & Abu-Raddada 2018:6). According to the UNAIDS 2021 Reference (2021:335), in 2020, 81% of people living with HIV knew their status, 76% of those who knew their status were receiving treatment, and 70% of those on treatment were virally suppressed.

2.4 SAME-DAY ANTIRETROVIRAL THERAPY

2.4.1 Goals of antiretroviral therapy

The primary goals of ART are a maximal and sustained reduction of plasma viral load and the restoration of immunological functions. The reduction in the viral load also leads to reduced transmissibility and a reduction in new HIV infections (National AIDS Control Organisation, India 2021:25). Furthermore, the National AIDS Control Organisation (2021:202) stated that while ART initiation is typically viewed as a non-emergency step, prioritising treatment readiness and active opportunistic infection management over ART often leads to a higher likelihood of reduced follow-up treatment when there's a prolonged duration between HIV diagnosis and ART initiation; yet, there are apprehensions that expediting or implementing same-day ART initiation might prompt individuals to commence treatment prematurely, potentially impacting adherence and treatment outcomes adversely.

2.4.2 Same-day ART initiation overview

The World Health Organization recommended a test-and-treat strategy for all patients including same-day ART initiation and increasing investment in scaled-up community-based strategies, will be critical to achieving the second 90-day goal (UNAIDS 2017:11). In 2017, a global survey conducted in 41 countries across 234 healthcare facilities regarding the “test and treat all” method revealed that 93% of healthcare facilities in the Caribbean, Central and South America, and East Africa regions, as well as Southern Africa, North America, Central Africa, and Asia-Pacific regions, are initiating all patients on ART, regardless of CD4+ cell count or WHO clinical stage (Brazier, Maruri, Duda, Tymejczyk, Wester, Somi, Ross, Freeman, Cornell, Poda & Musick 2019:3). In contrast, Brazier et al (2019:3) reported that in the West African region, 63% of HIV patients were tested and treated. According to Brazier et al (2019:5), 77% of the “test and treat all” sites reported to have introduced patients to ART within 14 days of determining their treatment eligibility.

A survey conducted by Brazier et al (2019:5) confirmed that same-day ART initiation was more commonly reported by sites in the East, Southern, and West Africa regions, ranging from 60% to 62%, as well as district hospitals (71%), and public sector sites (42%). Prior to 2016, HIV treatment was based on an eligibility criterion that included CD4 counts and WHO clinical staging. Following the WHO recommendation to test and treat, all countries initiated ART in their respective contexts. Significant mortality and lost to follow-up were observed during the pre-ART period, particularly among people with advanced HIV disease (World Health Organization 2017:19).

Most countries began rapid ART initiation, including same-day treatment. The study on delayed antiretroviral therapy among hospitalised adults in a resource-limited setting in Kampala, Uganda, found that 74.8% of the patients had delayed ART initiation because they did not begin ART within the first two weeks of eligibility (Ingabire, Semitala, Kamya & Nakanjako 2019:3). According to Ingabire et al (2019:3), only 19.9% of eligible patients began ART within two weeks of their eligibility period, 5.7% started while being hospitalised, 14.2% initiated the treatment after leaving the hospital, and 5.2% were lost to follow-up even before starting ART. Furthermore, Ingabire et al (2019:3) found that 32.5% of patients with delayed ART initiation died in hospital or after discharge within two weeks of being found to be ART eligible.

To address the challenge of HIV-related mortality and morbidity, WHO recommended that ART be offered to all patients with HIV infection who are ready to begin ART, regardless of their CD4 cell count, and WHO staging rapid ART initiation, including same-day initiation, be endorsed globally (World Health Organization 2017:19). UNAIDS also stated that implementing same-day ART initiation was one of the most important factors in meeting the 2nd 90 target (UNAIDS 2017:11). Rapid ART initiation, including same-day initiation, was identified as a key strategy in meeting the Joint United Nations Programme on HIV goal of three 90's. However, studies should investigate patient-reported outcomes related to rapid ART initiation to determine whether this approach is universally effective or suitable for specific groups and identify barriers to access, linkage, and retention in care (Boyd, Boffito, Castagna & Estrada 2019:8).

According to Boyd et al (2019:8), patient-reported outcomes could help determine whether rapid ART initiation promotes individual empowerment and retention in HIV care and treatment. To realise the potential benefits of rapid ART initiation, Boyd et al (2019:9) explained that new models of care may be required in which HIV diagnosis and management are fully integrated, yet individualised, with services such as an in-clinic pharmacy, accessible counselling, and social support, which are achievable through various strategies, including an infrastructure that includes telephone, online, and app-based platforms and electronic health records. A study conducted in China on the effect of AIDS-defining events at the initiation stage of ART on the long-term mortality of HIV patients in Southwestern China showed that early ART initiation reduced the risk of developing HIV opportunistic illnesses, increased survival rates, improved access to supportive services, and improved the overall quality of life (Huang, Zhou, Zheng, Xu, Shao, Qin, Qin, Lai, Liu, Chen & Ye 2020:8).

In a randomised controlled trial study on same-day ART therapy in rural Lesotho, retention within 90 days of ART initiation was 68.6% for people in the same-day ART group and 43.1% in the non-same-day ART group of patients. At 12 months after starting ART, 42.3% of participants had documented viral suppression (1000 copies/mL) (Labhardt et al 2018:1107). According to Labhardt et al (2018:1107), the same-day ART initiated group had a rate of 50.4% retention, while the non-same-day ART initiated group had a rate of 34.3% retention. This demonstrates that same-day ART initiation has better retention compared to non-same-day ART initiated. In contrast to this study, another

study conducted in Taiwan found that rapid ART initiation was associated with a significantly higher rate of engagement in care at 12 months compared with standard initiation (88.3% vs 79.0%; p = 0.002) and a lower risk of lost to follow-up (hazard ratio 0.41; 95% CI 0.24–0.83) (Hung, Phanuphak, Wong, Olszyna & Kim 2022:5).

The benefit of initiating same-day ART regarding viral suppression showed that the percentages of patients with complete viral suppression 12 months after ART initiation were similar (98% in rapid ART initiation and 97% in deferred ART initiation) (Langwenya et al 2018:3). According to Langwenya et al (2018:3), 73% of pregnant women received rapid ART initiation, including same-day treatment within 48 hours. Another prospective cohort study conducted in the West on rapid antiretroviral therapy initiation and its effect on treatment response in MSM showed that 86% of patients with rapid ART initiation had a viral load less than 1000 copies/ml versus 76.8% of patients who initiated ART at later stages (Yaya, Mensah, Coulibaly, Kouamé, Traoré, Mora, Palvadeau, Anoma, Keita, Spire & Laurent 2021:2205).

Retrospective analysis of rapid antiretroviral therapy at San Francisco General Hospital by the University of California, San Francisco (UCSF) revealed that the median time from HIV diagnosis to the start of ART was 7 calendar days in all study groups: 6 days in the early referral group and 71 days in the group referred after diagnosis (Coffey, Bacchetti, Sachdev, Baconc, Jonesc, Ospina-Norvella, Torresa, Lyncha, Campa, Mercer, Mercer-Slomoff, Leea, Christopoulosa, Pilchera, Hsuc, Jinb, Scheerc, Havlira & Gandhia 2019:6). The median time from the first clinic visit to rapid ART initiation was 0 days in both groups (Coffey et al 2019:6). Coffey et al (2019:6-7) discovered that a health systems intervention to initiate antiretroviral therapy (ART) on the same-day of the HIV diagnosis was highly feasible in a real-world public health clinic in San Francisco.

Antiretroviral treatment initiation on the same-day was well accepted, well tolerated by patients, and did not appear to interfere with the subsequent engagement in care. Another study conducted in Johannesburg and Mopani, South Africa, showed an increase in the rate of same-day ART initiation from 30.3% in October 2017 to 54.2% in June 2018 (Lilian, Rees, McIntyre, Struthers & Peters 2020b:3). According to Lilian et al (2020b:3), those who began ART on the same-day of diagnosis were younger (p 0.001) and more likely to be female (p 0.001). Lilian et al (2020b:6) stated that the rate of lost to follow-up in clients who started treatment on the same-day as their HIV diagnosis was

higher than in clients who started treatment later.

At six months, Lilian et al (2020b:6) found that 30.1% of people who started ART on the same-day of their HIV diagnosis were lost to follow-up, 22.4% were lost to follow-up after 1-7 days, 19.8% were lost to follow-up after 8-21 days, and 21.9% of patients were lost to follow-up after 22 days of their HIV diagnosis. However, when compared to 1-22 days and beyond, the six-month lost to follow-up rate was 8.7% of the patients. Furthermore, Lilian et al (2020b:6) found that among clients who were lost to return rate of those who started treatment on the same-day was 29%, compared to 34.7% for non-same-day ART initiated clients. Lilian et al (2020b:4) finding showed that the implementation of same-day ART initiation was 84.1% among pregnant women compared to 32.9% among non-pregnant women.

In summary, infrastructure barriers, patient attitudes, and provider attitudes may all have an impact on the speed with which HIV treatment is initiated. For example, HIV testing is frequently performed at a location different from where treatment is initiated, requiring time before a patient is able to link to HIV care and adherence assessment. Even within the same healthcare facility, the testing unit and the location where ART is initiated are separated, and in this case, different people are allocated to provide service. Additionally, patients' adherence to schedules and keeping appointments with a new healthcare provider should be fixed before ART is initiated. Even when HIV care can be provided in a clinic, other aspects of care are usually prioritised over ART during the initial visit of the patient. Other aspects of care, such as post-test counselling and education, as well as the management of housing and substance abuse issues, are prioritised, and ART initiation is postponed for the clients. In some cases, ART may be postponed until patients demonstrate their readiness to adhere to ART by attending fewer clinic visits.

Ethiopia developed ART guidelines based on WHO rapid ART initiation recommendations, including recommendations for same-day ART initiation (Federal Ministry of Health Ethiopia 2017:21). According to the newly developed ART guidelines, the ideal time for ART initiation is dependent on the clinical condition and readiness of the clients for those HIV-positive clients to begin ART as soon as possible, including same-day ART (Federal Ministry of Health Ethiopia 2018:47). According to the Federal Ministry of Health Ethiopia (2018:49), it is critical for people living with HIV to begin ART as soon as possible, including the initiation of same-day ART treatment. However, there

is no research publication available in Ethiopia on the performance status, benefits, and challenges of same-day ART initiation. Even the Ethiopian Demographic Health Information System (DHIS2), the country reporting system, did not include same-day ART initiation as a data element to report.

Thus, the purpose of this study was to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients who are lost to follow-up, and viral suppression monitoring mechanisms.

2.4.3 Adherence to ART overview

Adherence is the extent to which a person's behaviour towards taking medication and following a healthy lifestyle, including a healthy diet and other activities, concords with the agreed recommendations of healthcare providers (National AIDS Control Organisation, India 2021:57). According to the Indian National AIDS Control Organisation (2021:57), adherence should be assessed and routinely reinforced by everyone in the HIV care team (including physicians, counsellors, nurses, pharmacists, peer educators, care coordinators, Care and Support Centre staff and others) at each patient's visit to the ART centre.

For ART, a high level of sustained adherence is necessary to suppress viral replication, improve immunological and clinical outcomes, decrease the risk of developing ARV drug resistance, and reduce the risk of transmitting HIV (Federal Ministry of Health Ethiopia 2018:141). Adherence is most difficult during the first few months of treatment: the patient is not yet in the habit of taking their medications every day, they are not familiar with common side-effects, and they have more challenges with disclosure and stigma, all of which can interfere with their adherence to treatment (Ministry of Health Kenya 2022:42). According to the national HIV prevention and treatment guidelines of the Ministry of Health, Kenya (2022:42), patient preparation and counselling should be a collaborative process between the provider and the patient or caregiver, to enable the patient to initiate and continue lifelong treatment.

This is best done when the same adherence counsellor follows an individual patient throughout the preparation, initiation, and early ART period. Some relevant studies

conducted on related adherence have been presented below. A cross-sectional study on ART medication adherence conducted in Iran revealed that the educational level variable was related to ART medication adherence (Morowatisharifabad, Movahed, Nikooie, Farokhzadian, Bidaki, Askarishahi & Hosseinzadeh 2019:398). Poor adherence was 4.53 times higher in illiterates than in those with a diploma or higher degrees, according to Morowatisharifabad et al (2019:398).

Same-day initiation was associated with LTFU from the ART programme six months after treatment initiation (p 0.001), with a lower proportion of deaths among same-day initiators (p 0.001) and 38% of deaths observed in those who initiated ART more than 22 days after HIV diagnosis (Lilian et al 2020b:4). The data on self-reported adherence was 95.4% in a study on HIV treatment response among female sex workers participating in a treatment as prevention demonstration in Benin, Nigeria, among the 217 follow-up visits for which viral load testing was performed at 3 months or later (Diallo, Béhanzin, Guédou, Geraldo, Goma-Matsétsé, Kania, Kêkê, Bachabi, Affolabi, Diabaté & Gangbo 2020:9).

Diallo et al (2020:9), affirm that adherence increased from 50% of patients to 74%, with the prevalence ratios remaining nearly identical for the two higher adherence categories, gradually increasing to reach a maximum of 95.4%. A study conducted in India on the quality and effectiveness of counselling at antiretroviral therapy centres showed that adherence to ART can be affected by the provider or counsellor, and reports found that 80% of healthcare facilities' counsellors were satisfied with their current jobs (Agarwala, Rewari, Allam, Chava & Rathore 2019:483). This also demonstrates the importance of keeping staff motivated and satisfied, which has contributed to the patient’s adherence to ART medication through counselling.

Adherence to antiretroviral therapy (ART) is critical for achieving viral suppression in people living with HIV, as well as for maintaining their health and preventing HIV transmission to others. A study conducted in the United States to investigate the relationship between viral load and adherence found that a 10% increase in adherence was associated with a 27% reduction in viral load (Cunningham, Nance, Golin, Flynn, Knight, Beckwith, Kuo, Spaulding, Taxman, Altice & Delaney 2019:5). A cross-sectional survey conducted in Houston, in the United States, on a systemic delay in the initiation of antiretroviral therapy for clinically eligible HIV-infected patients of people diagnosed with HIV aged 18 and older in 23 healthcare facilities revealed three main reasons for delaying

ART (Mgbere, Rodriguez-Barradas, Vigil, McNeese, Tabassam, Barahmani, Wang, Arafat & Essien 2018:4).

According to Mgbere et al (2018:4), the three main reasons for the delay of ART were adherence concerns at 42.5%, patient acceptance concerns at 30%, and infrastructure concerns at 27.5%. Substance use and mental health issues account for 20% of the reasons why providers delay ART for clinically eligible patients, followed by poor clinic visits and appointment adherence issues, which account for 12.5% (Mgbere et al 2018:4). Overall, access to ART was delayed for 10.3% of clinically eligible patients due to adherence concerns, compared to 6% of deferrals due to acceptance and infrastructure issues. Another cross-sectional study conducted in India to assess the quality of counselling and adherence at 357 ART centres using a qualitative assessment among 1785 ART beneficiaries revealed that 79.5% were receiving treatment preparedness information, which included counselling prior to ART initiation (Agarwala et al 2019:483).

According to Agarwala et al (2019:483), 96% of beneficiaries were informed about the date of the next follow-up visit, and 90% of beneficiaries reported receiving psychological support from ART centre counsellors to help them adhere to their ART medication. Furthermore, Agarwala et al (2019:483) reported that 30% to 40% of beneficiaries were not informed about ART adherence in terms of counselling on the side effects of ART and access to social benefit schemes. The purpose of this study is to determine the benefit of same-day ART initiation for patient retention, which was discussed below.

2.4.4 Retention to ART overview

The prevention of HIV-associated morbidity and mortality is one goal of antiretroviral therapy (ART). The study on the effect of same-day ART initiation in a public health facility in the United States found that lost to follow-up treatment occurred in 10.3% of patients initiated on rapid ART and 14.9% of non-rapid patients (p=0.52) (Pilcher, Ospina-Norvell, Dasgupta, Jones, Hartogensis, Torres, Calderon, Demicco, Geng, Gandhi & Havlir 2018:7). Similarly, a study on the outcomes of patients lost to follow-up after starting antiretroviral therapy in rural north-eastern South Africa found that 10% of patients were LTFU 3 years after starting same-day ART (Ambia, Kabudula, Risher, Gomez-Olive, Rice, Etoori & Reniers 2019:751).

A meta-analysis conducted in Zambia using the smart care database revealed that 67.7% of patients were still alive 24 months after starting ART, regardless of when they began the treatment (Sikazwe, Eshun-Wilson, Sikombe, Czaicki, Somwe, Mody, Simbeza, Glidden, Chizema, Mulenga & Padian 2019:7). Furthermore, a study conducted in Zambia on retention and viral suppression in a cohort of HIV patients on ART reported that new ART initiators retained 35.9% of the total ART cohort at 24 months (Sikazwe et al 2019:7). Another study conducted in Haiti on same-day HIV testing and antiretroviral therapy initiation found that 75% of patients who started same-day ART were retained at 12 months, while 65% of those who deferred ART initiation were retained at 12 months, with an absolute 10% difference (Koenig, Dorvil, Dévieux, Hedt-Gauthier, Riviere, Faustin, Lavoile, Perodin, Apollon, Duverger & McNairy 2018:6).

Among same-day patients, 33% (n = 11,114) were classified as LTFU with a median time of 55 days (IQR = 1 to 185) due to people's negative perceptions of HIV medication as a result of poor medication adherence (Joseph Davey, Kehoe, Serrao, Prins, Mkhize, Hlophe, Sejake, & Malone 2020:3). According to a study on same-day antiretroviral therapy among HIV-infected adults in South Africa, the rate of lost to follow-up was 30.1% compared to 22.4% for those that began 1-7 days after HIV diagnosis, 19.8% for those started 8-22 days after HIV diagnosis, and 21.9% for those started 22 days after HIV diagnosis (Lilian et al 2020b:6). Similarly, in Mozambique, a retrospective cohort analysis on the validity of reported retention after antiretroviral therapy revealed that 33% of clients started on same-day ART were lost to follow-up (LTFU), equating to a 67% retention in HIV care and treatment at 12 months (Lafort, Couto, Sunderbrink, Hoek, Shargie, Zhao, Viisainen & Simwaka 2018:7).

In a study conducted in Amhara regional state, on predictors of a high incidence of opportunistic infections among HIV-infected children receiving ART, the results revealed that the overall incidence rate of LTFU was 12.26 per 100 person years (95% CI 10.61–14.18) (Mekonnen, Abdulkadir, Shumetie, Baraki & Yenit 2019:3). Mekonnen et al (2019:3) stated that underweight patients (BMI<18.5 kg/m2) were 1.52 times at higher risk of LTFU (AHR, 1.52, 95% CI 1.01–2.28) as compared with BMI≥18.5 kg/m2, jobless participants that were 2.22 times more likely to be LTFU (AHR, 2.22, 95% CI 1.2–4.11). Furthermore, Mekonnen et al (2019:3) affirm that participants who are substance abusers had an 84% increased risk of LTFU as compared to their counterparts (AHR, 1.84 95% CI 1.19–2.86). Participants with sub-optimal adherence status (fair/poor) had a 6.33 times

higher risk of LTFU (AHR 6.33, 95% CI 3.90–10.26) than participants with good adherence.

2.4.5 Viral suppression overview

Viral suppression is defined in the Glossary of HIV Related Terms (AIDS Info Glossary 2021:180) as when antiretroviral therapy (ART) reduces a person's viral load (HIV RNA) to an undetectable level (1000 copies/ml). Viral suppression does not imply cure; HIV still exists in the body. If ART is stopped, the person's viral load will almost certainly return to detectable levels. A study conducted in the Amhara region of northwest Ethiopia on the virologic outcomes of people living with human immunodeficiency virus who started antiretroviral treatment on the same-day of diagnosis showed that by 12-months following ART initiation, 292 (73.4%) of 398 participants in the same-day group and 401 (83.7%) of 479 in the >7-day group had achieved low viral load status [absolute difference = 10.3% (95% CI: 4.9%, 15.8%; p < .001)] (Ahmed, Demissie, Worku, Gugsa & Berhane 2021b:8).

Observational cohort data has also shown that up to 10% of people with HIV can lose viral suppression within the first year of starting ART; however, the likelihood of maintaining a suppressed viral load generally improves over time (Coffey et al 2019:825). The viral suppression to less than 50 copies/ml at least once by 1 year was estimated to be 95% in a study on rapid antiretroviral therapy at the University of California, San Francisco General Hospital. Virologic suppression to less than 200 copies/ml was achieved in 92.1% of patients over a median follow-up of 1-3 years (Coffey et al 2019:6). According to Coffey et al (2019:6), virologic failure was associated with the use of preselected rapid antiretroviral regimens.

A retrospective analysis of viral suppression achieved and maintained among newly diagnosed patients at a health care facility in New York City revealed that 44% of the population achieved suppression within 12 months of diagnosis (Wiewel, Borrell, Jones, Maroko & Torian 2019:1485). Furthermore, the median time from diagnosis to suppression was reported at 245 days (Wiewel et al 2019:1485). A similar study on HIV treatment response among female sex workers in Benin, Nigeria, found that viral suppression was 73.2% at 6 months, 88.2% at 12 months, and 82.3% at 24 months, that the geometric mean viral load at 24 months was significantly lower (144.4; 95% CI: 79.8-261.4) compared to baseline (p.0001), and that more than 81% of participants with regular

final visits had suppressed (below quantification limit) viral load (Diallo et al 2020:8).

A retrospective study on factors associated with virologic non-suppression among antiretroviral-treated adolescents and adults in North Ethiopia found that overall viral suppression was 73.61% (Desta, Woldearegay, Futwi, Gebrehiwot, Gebru, Berhe & Godefay 2020:5). An ART regimen and immunological response after ART initiation were associated with viral suppression (Desta et al 2020:5). Another study on predictors of time to viral suppression in adults on ART in southern Ethiopia found that viral suppression was achieved in 80.9% of cases (Hussen, Mama, Mekonnen, Yihune, Shegaze, Boti & Shure 2019:756). Hussen et al (2019:756) discovered that the median time to viral load suppression with a 95% confidence interval was 3 months (2.68, 3.32).

A similar study in the East Shewa zone to determine the time taken to achieve viral load suppression discovered that viral suppression occurred 72.4% of the time after starting ART (Ali & Yirtaw 2019:3). According to Ali and Yirtaw (2019:4), the estimated median time to suppression was 181 days (CI: 140.5-221.4), with the 30-39-year age group having the shortest time to achieve suppression at 92 days (CI: 60.1-123.8) and the 50-59-year age group having the longest time. A retrospective study on factors associated with viral suppression in antiretroviral therapy patients in the Ho Municipality of Ghana found that viral suppression was 69% (Lokpo, Ofori-Attah, Ameke, Obirikorang, Orish, Kpene, Agboli, Kye-Duodu, Deku, Awadzi & Noagbe 2020:3).

Data from the Centers for Disease Control and Prevention (CDC) on the status of HIV testing, viral suppression, and HIV pre-exposure prophylaxis from the 1980s to June 2019 from 50 states and the District of Columbia (DC) for persons aged 13 years with diagnosed HIV infection revealed that 62.7% of the population were virally suppressed (Harris, Johnson, Huang, Kern, Fulton, Smith, Valleroy & Hall 2019:1118). According to Harris et al (2019:1118), those aged 13-24 years had the lowest percentages of viral suppression (56.9%), blacks and African Americans had 57.4% viral suppression, and males who inject drugs had 52.0%, compared to other age, racial/ethnic, and transmission risk groups.

The CASCADE Randomised Clinical Trial study on same-day ART initiation in Lesotho found that viral suppression was 31.8% for same-day ART initiated at 6 months, compared to 26.3% for non-same-day ART (Labhardt et al 2018:1107). A similar study in

Haiti on same-day HIV testing and antiretroviral therapy initiation found that 71.9% of those who started ART same-day were virally suppressed at 12 months, while 51.7% of those who deferred ART initiation were virally suppressed at 12 months (Koenig et al 2018: 9). In conclusion, the initiation of same-day ART has demonstrated a positive impact on viral suppression. The literature review showed the effectiveness of the same-day ART initiation approach in achieving the desired outcome of viral suppression among HIV patients.

2.5 STRATEGIES DEVELOPMENT

Strategy is about deciding, about choosing a path based on available information that should result in a better outcome, however the outcome is defined (Hughes 2021:8). Strategies for same-day ART, lost to follow-up, and viral suppression monitoring mechanisms were developed based on the integration of phases 1 and 2, the use of a theoretical framework, the logical reasoning approach, and the review of literature. The strategies were developed with the goal of improving same-day ART initiation service uptake in order to meet global targets by 2030. The specifics of strategy development were covered in Chapters 4 and 8. However, the implementation of the developed strategies is described below.

2.5.1 Implementation of strategies for same-day ART initiation

To meet the global targets of 2030, the same-day ART initiation approach was used for antiretroviral therapy. As seen in the literature review, despite making good progress towards the targets, it was still a long way from achieving the desired goal. Various strategies for HIV testing, linkage, and adherence enhancement have been discussed below. A systematic review was conducted to summarise available data on the strategies used to increase PLHIV linkage to HIV care in Sub-Saharan African urban areas (Owusu, Adu-Gyamfi & Ahmed 2019:328).

Owusu et al (2019:328) conducted a systematic review of community-based HIV testing and incentive-based strategies used to improve linkage to HIV chronic care. However, strategies did not significantly improve linkage to HIV treatment and care. In Tanzania, for example, 84% of individuals tested at facility-based sites were linked to care 6 months after diagnosis, compared to 69% of individuals tested at community-based sites; in

Zambia, 65% of HIV self-tested (HIVST) individuals were linked to HIV care, compared to 64% of non-HIVST individuals who were linked to care 3 months after diagnosis. In this study, both cash and non-cash incentives were ineffective as linkage strategies (Owusu et al 2019:328).

A systematic review study conducted in Eswatini to evaluate strategies to reach the second 90 revealed that peer-supported case management, escort and reimbursement for transportation costs, treatment navigation, appointment reminders, and other psychosocial support are strategies used to improve linkage and same-day ART initiation (Bunda & Bassetta 2019:499). Additionally, the findings support the recommended package's acceptability and utility in assisting programmes to achieve near-universal linkage to HIV care and same-day ART initiation (Bunda & Bassetta 2019:499). A similar study on a patient-cantered multicomponent strategy for accelerated linkage to care following community-wide HIV testing was conducted in rural Uganda and Kenya, revealing that personal introduction to clinic staff members at the time of testing positive for HIV, access to a resource 'hotline,' one-time reimbursement for transportation to a clinic, appointment reminders, and telephone and in-person tracing where the first appointment was used all had positive outcomes to achieving the WHO 2030 goals (Ayieko, Petersen, Charlebois, Brown, Clark, Kwarisiima, Kamya, Cohen, Bukusi, Havlir & Van Rie 2019:15).

According to Ayieko et al (2019:17), nearly 75% of the participants were linked after one year, and 50% were linked within seven days. In Tanzania, a community-based ART delivery strategy for female sex workers (FSW) was demonstrated to improve retention in HIV chronic care, while minimising high levels of stigma and low levels of ART access (Tun, Apicella, Casalini, Bikaru, Mbita, Jeremiah, Makyao, Koppenhaver, Mlanga & Vu 2019:146). Tun et al (2019:146) report that at 6 months, the treatment outcomes of participants receiving community-based ART were 100% in HIV care compared to 72.7% for those receiving facility-based ART.

A randomised trial conducted in Malawi to improve HIV self-testing with financial incentives and phone reminders among male partners of antenatal care clinic attendees found the primary linkage endpoint to be significantly associated with the financial incentive and phone reminder (Choko, Corbett, Stallard, Maheswaran, Lepine, Johnson, Sakala, Kalua, Kumwenda, Hayes & Fielding 2019:5). According to Choko et al (2019:5),

financial incentives for HIV self-testing and linkage to care among men are the most promising strategies.

New models of care may be required to realise the potential benefits of rapid ART initiation, in which HIV diagnosis and management are fully integrated, yet individualised, with services such as an in-clinic pharmacy, accessible counselling, and social support (Boyd et al 2019:9). Therefore, various strategies, including an infrastructure that includes telephone, online and app-based platforms, and electronic health records, were proposed by Boyd et al (2019:9) to achieve the desired outcomes.

2.6 THE WAY FORWARD

The literature review provided a framework for determining the significance of the study, with the goal of adding to the body of knowledge by comparing the results to other findings (Creswell & Creswell 2018:61). Polit and Beck (2017:172) stated that the review should demonstrate in analysing findings from contradictory other studies and their supporting evidence in order to conclude with a concise summary of evidence on the topic and gaps in the body of knowledge from the above-mentioned literature review on same-day antiretroviral therapy initiation regarding viral suppression and retention in HIV care.

According to a review of the literature, 77% of sites implementing the test and treat all approach reported initiating patients on ART within 14 days of determining treatment eligibility (Brazier et al 2019:5). This has an impact on progress towards the global targets of 90:90:90 by 2020 and ending HIV epidemics by 2030. To achieve these global targets, a treat all approach, including same-day ART initiation, was used as a strategy, particularly in achieving the second 90 days (UNAIDS 2017:11). In this regard, same-day ART initiation strategies must be developed, as this is not currently being monitored in the Ethiopian context via the DHIS2 reporting system.

A study conducted in South Africa, Johannesburg, and Mopani on same-day ART initiation revealed that lost to follow-up was higher in clients who began treatment at the time of their HIV diagnosis (Lilian et al 2020b:6). At six months, Lilian et al (2020b:6) found that 30.1% of people who started ART the same-day were lost to follow-up, while 22.4% started their treatment within 1-7 days, 19.8% started 8-21 days, and 21.9% started after 22 days of HIV diagnosis. On the other hand, studies have shown that

counselling, adherence, mental illness, and substance use all influence same-day ART initiation with a lost to follow-up outcome (Mgbere et al 2018:4; Agarwala et al 2019:483). Similarly, a study on the outcomes of patients lost to follow-up after starting antiretroviral therapy in rural north-eastern South Africa found that 10% of patients were LTFU 3 years after starting same-day ART (Ambia et al 2019:751).

In conclusion, studies from different setting revealed that disparities in the status of same-day ART initiation, its benefit for HIV care retention, and viral suppression. The literature review revealed a significant gap in research on same-day ART initiation in Ethiopia, with no studies conducted or published on this topic until the identification of this research problem and the initiation of this study. This study aims to address these gaps by contributing to the existing knowledge and strategies for improving same-day ART initiation, retention in HIV care, and viral suppression monitoring mechanisms at the healthcare facility level in Ethiopia.

2.7 SUMMARY

This chapter provided a detailed literature review on HIV epidemiology globally, especially in Africa, with particular attention to Ethiopia and South Africa. Same-day ART initiation, including adherence, viral suppression, and retention in HIV chronic care, and strategies used for ART initiation, adherence, and linkage to chronic HIV care were discussed. It was shown that same-day ART initiation is important for retention and viral suppression. Adherence also shows that one factor affects same-day ART initiation, as evident in the literature review. Strategies used for ART initiation and linkage to HIV chronic care were assessed regarding the available literature. In the next chapter, the theoretical framework that was used in this research will be discussed.

CHAPTER 3
THEORETICAL FRAMEWORK

3.1 INTRODUCTION

In Chapter 2, the relevant literature is reviewed and discussed. An overview of the theoretical framework used in this study is discussed in Chapter 3. The section will focus on the theoretical framework defined by theory, the type of theory used, and its application in this study. This study was guided by health behavioural theory, which is discussed in this chapter. Health behaviour refers to any behavioural practice that has an impact on physical health, regardless of whether the behaviour promotes or jeopardises one's health (Wenzel 2017:1611). The section describes key health behavioural theories and key concepts, as well as summarising the evidence on the use of theory in health behavioural intervention research. This is followed by a discussion of how health behavioural theories can be applied to this study.

3.2 THEORY

Theory is a systematic abstract explanation of some aspects of reality that is useful in both quantitative and qualitative research (Polit & Beck 2017:180). Polit and Beck (2017:180) stated that the theoretical framework informs the researcher and allows the results to be generalised to other groups and settings other than the study participants. According to Creswell and Creswell (2018:105), theory can be incorporated into a mixed methods study in a variety of ways to assist researchers in collecting, analysing, and integrating quantitative and qualitative data using various mixed methods designs.

The researcher applied health behaviour theory based on the research objectives and questions. The health behaviour model, according to Wenzel (2017:1612), included the health belief model, theory of reasoned action (TRA), social cognitive theory, and dual-process models. To address research objectives and answer research questions, the researcher chose the health belief model and the theory of reasoned action for this study. These two models are thoroughly discussed below.

3.3 HEALTH BEHAVIOURS

Health behaviour is defined as any behavioural practice that is related to physical health and is either health promoting or health compromising (Wenzel 2017:1611). According to Wenzel (2017:1611), health behaviours are among the primary causes of many prevalent chronic diseases, and promoting healthy behaviours has been identified as one of the most effective ways to reduce chronic disease morbidity, mortality, and health care costs. Behaviour has a significant impact on one's health and can be classified as health-maintaining behaviours, protective and preventive behaviours, and risk behaviours (Miller 2016:80). According to Orlowski (2015:81), health behaviour is useful for filling gaps and providing details in broad categories. Wenzel (2017:1611) went on to list some of the most common health behaviours as physical activity, sexual behaviour, alcohol use, diet, and smoking. The following health behaviours were discussed.

3.3.1 Physical Activity

Miller (2016:80) claims that behaviour has a significant impact on physical health conditions such as heart disease, HIV, diabetes, and cancer. Physical activity guidelines recommend that individuals engage in 150 minutes per week of moderate physical activity to reduce the risk of mortality and morbidity (Wenzel 2017:1614). A cross-sectional study conducted in a medical centre in Zhuhai, China, on physical activities and associated factors among HIV patients revealed that physical activity (PA) plays an important role in reducing the morbidity and mortality of many diseases and that people of all ages can get a range of physical, psychological, social, and emotional benefits from it (Zou, Sun, Zhang & Li 2022:1708).

Similarly, a cross-sectional study on physical activity among people living with HIV at Royal Sussex County Hospital in Brighton, UK, found that people living with HIV had a significantly higher prevalence of physical co-morbidities (69.1%) than HIV negative people (42.7%) (Martin, Naclerio, Karsten, & Vera 2019:592). According to Martin et al (2019:592), 16.4% of PLHIV have hypertension compared to 4.5% of HIV negatives; 26.4% have cholesterol compared to 8.2% of HIV negatives; 20.9% of PLHIV have a history of respiratory disease compared to 10.0% of HIV negatives; and 7.3% have cancer compared to 0.9% of HIV negatives. These figures demonstrated that physical behaviours have a significant impact on HIV-positive patients and should be modified.

3.3.2 Diet

Healthy eating entails eating foods that will improve or maintain health and avoiding foods that will harm one's health (Wenzel 2017:1614), and dietary guidelines encourage the consumption of a variety of nutrient-dense foods such as fruits, vegetables, and legumes; lean meat, fish, and poultry; low-fat milk and yoghurt; water; and firebrick foods, while limiting fats, cholesterol, sugar, salt, and sugar-sweetened or alcoholic beverages (Wenzel 2017:1614). A study conducted in Kathmandu, Nepal, on nutritional status and the associated factors among people living with HIV showed that the role of HIV infection has been well documented, with wasting as one of the most visible signs of malnutrition in patients who progress to AIDS, and the study found that about 18.3% of PLHIV were undernourished (Khatri, Amatya & Shrestha 2020:9).

According to a systematic review on nutrition intervention and HIV infection, dietary intake should be assessed to determine actual food intake and factors influencing food intake, such as food insecurity, cultural food preferences, food intolerances, anorexia, gastro-intestinal symptoms, and supplement use (Willig, Wright & Galvin 2018:489). According to Willig et al (2018:489), nutritional assessment is critical in promoting the health and quality of life of PLWH because the negative effects of malnutrition are identified early and intervention can begin soon after diagnosis. In general, a literature review showed that overall nutritional status and dietary choices significantly influence HIV outcomes.

3.3.3 Sexual Health

Because sexual health behaviours impact the spread of sexually transmitted diseases, sexual behaviours are considered health behaviours. A cross-sectional study conducted in the United Kingdom to assess the risk of alcohol consumption associated with health behaviour among HIV-positive and negative patients found that 86% of HIV negative patients had three or more sexual partners, compared to 46% of HIV-positive patients; 87% of HIV negative patients had unprotected sex, compared to 55% of HIV-positive patients (Suonpera, Matthews, Milinkovic & Arenas-Pinto 2020:1721). A prospective cohort study in Ireland to assess the impact of HIV on young people with perinatal HIV infection discovered that 40% of HIV young people had never had vaginal or anal sex (Judd, Foster, Thompson, Sturgeon, Prevost, Jungmann, Rowson, Castro & Gibb

2018:5). This demonstrated that sexual behaviour among young people living with HIV is prevalent.

Another cross-sectional study conducted in Henan, China, investigated the factors associated with risky sexual behaviours related to HIV/STDs among university students. The study revealed that 75.7% of university students who reported ever having had sexual intercourse and multiple sexual partners did not use condoms in the past six months (Du, Zhang, Luo, Rong, Meng, Yu & Tan 2021:4). This indicates a significant level of unsafe sexual practices among university students, highlighting the urgent need for targeted sexual health education and intervention programmes to promote safer sexual behaviours and reduce the risk of HIV/STDs. A study on risky sexual behaviour among people living with HIV in Andabet district, Ethiopia, using a model of unsafe sexual behaviour, found that a significant proportion of respondents (69.6%) were forced into sexual intercourse, 20.4% had multiple sexual partners, and 19.3% reported having sex without using a condom (Worede, Mekonnen, Aynalem & Amare 2022:3). These findings underscore the ongoing challenges in promoting safe sexual practices among individuals at high risk of HIV/STDs, further emphasising the need for comprehensive sexual health education and intervention programmes.

3.3.4 Smoking

The health behaviour most closely associated with chronic disease and increased morbidity and mortality is smoking (Wenzel 2017:1614). A similar study to assess the effects of tobacco use on antiretroviral therapy revealed that 69.4% of participants admitted to having ever smoked and 27.6% were current tobacco users as determined by cotinine levels (Steel, Venter, Theron, Anderson, Feldman, Kwofie, Cronjé, Arullapan & Rossouw 2018:4). This demonstrated smoking to be a common health behaviour among people on ART, affecting ART medication and one area of health care provider team intervention.

A qualitative secondary data analysis conducted to assess perceived barriers to smoking cessation among HIV-positive people revealed that participants had relapsed or slipped back into smoking during a stressful situation in the belief that smoking helped them manage stress (Cioe, Gordon, Guthrie, Freiberg & Kahler 2018:3). This demonstrated that smoking is used as a behaviour to manage stressful situations, which must be done

prior to the start of ART by the health care provider team to help patients adhere to medication. A similar study on smoking risk reduction strategies found that, when compared to HIV, the number of lives lost due to smoking is 2-3 times that of the general population (Giles, Gartner & Boyd 2018:4). According to Giles et al (2018:4), assisting individuals in quitting smoking should be a primary focus in modern HIV care. The literature reviewed underscored the importance of addressing smoking and related addictions in HIV care and treatment through targeted counselling interventions.

3.3.5 Alcohol Use

Alcohol consumption is another health behaviour that has a significant impact on one's health. According to a descriptive study conducted in Korea to investigate whether alcohol use affects ART therapy adherence among HIV-infected people, 64.5% were non-hazardous drinkers. 13.9% were binge drinkers, 17.4% were risky drinkers, and 4.2% were alcoholics (Kim, Yang & Kim 2018:259). Due to the effects of alcohol use, only 75% of participants adhered to their medications more than 95% of the time (Kim et al 2018:261). A similar cross-sectional study conducted in Uganda to assess substance use and its impact on antiretroviral treatment adherence among male HIV patients reported that 64.8% of the participants drank at dangerous levels (Sileo, Kizito, Wanyenze, Chemusto, Reed, Stockman, Musoke, Mukasa & Kiene 2019:7).

According to Sileo et al (2019:8), the quantity and frequency index of alcohol use were associated with a higher likelihood of reporting missed antiretroviral drugs (OR: 1.56, 95% CI: 1.27- 1.92, p 0.001). A cross-sectional study conducted in the UK to assess risky alcohol consumption and associated health behaviour among HIV-positive and HIV-negative patients found that 25% of HIV-positive patients reported risky alcohol consumption, 18% of HIV-positive patients reported hazardous drinking, 3% drank at dangerous levels, and 4% were likely to be alcohol dependent (Suonpera et al 2020:1721). According to Alcohol use was significantly associated with depressive symptoms ($p = 0.03$) and problematic drug use ($p = 0.007$) (Suonpera et al 2020:1721). Another cross-sectional study conducted in Kathmandu, Nepal, among HIV-infected participants receiving antiretroviral therapy, revealed that 26.5% were current smokers and 22.7% were current alcoholic drinkers (Bhatta, Subedi & Sharma 2018:3). Alcohol consumption was statistically significant among HIV-infected individuals who had ever forgotten to take ART medication, according to Bhatta et al (2018:5).

3.4 HEALTH BEHAVIOURS THEORY

According to Polit and Beck (2017:180), theory is a systematic abstract explanation of some aspects of reality that play an important role in both quantitative and qualitative research. Health behaviour theory is one that can explain what types of beliefs predispose people to act (Orlowski 2015:81). Similarly, health behaviour theories emphasise the relationship and, in some cases, the sequence of behavioural mediators, and they are health behaviour theories are essential for understanding health behaviours. The health belief model and theory of reasoned action are discussed further below.

3.4.1 Health belief model (HBM)

Irwin M. Rosenstock and colleagues created the Health Belief Model in the 1950s (Miller 2016:81). The health belief model (HBM) was developed by Miller (2016:405) to explain why people frequently fail to follow disease prevention recommendations. The original model proposed three constructs that influence the likelihood of performing a health behaviour: threat appraisal, which was derived from beliefs about susceptibility to and severity of an illness; and behaviour appraisal, which was derived from beliefs about the benefits and costs of the recommended behaviour and its cues to action (Miller 2016:81).

The Health Belief Model (HBM) proposes that a person's perception of a threat posed by a health problem, as well as the value associated with actions aimed at reducing that threat, influences their health seeking behaviour (Polit & Beck 2017:191). The major components of the HBM, according to Polit and Beck (2017:191), are perceived susceptibility, perceived severity, perceived benefits and costs, motivation, and enabling or modifying factors. A cross-sectional study conducted in Iran on factors influencing weight management behaviour among college students using the health belief model (HBM) found that perceived threats, perceived barriers, perceived benefits, self-efficacy in dieting, and self-efficacy in exercise all had a direct impact on the behavioural intention of weight management (Saghafi-Asl, AliasgharzadehID & Asghari-Jafarabadi 2020:8). According to Saghafi-Asl et al (2020:8), higher levels of the aforementioned scales were significantly related to higher behavioural intentions towards weight management. Furthermore, cues to action, perceived benefits, and self-efficacy in exercise indirectly influenced weight management behavioural intention via the impact of perceived threats.

The health belief model (HBM), according to Wenzel (2017:1612), proposes five variables that influence people's health behaviours in order to prevent disease or other health threats. Similarly, Orlowski (2015:100) presented the constructs of a health belief model, as shown below (Figure 3.1). The following are the variables that influence health behaviour in the health belief model.

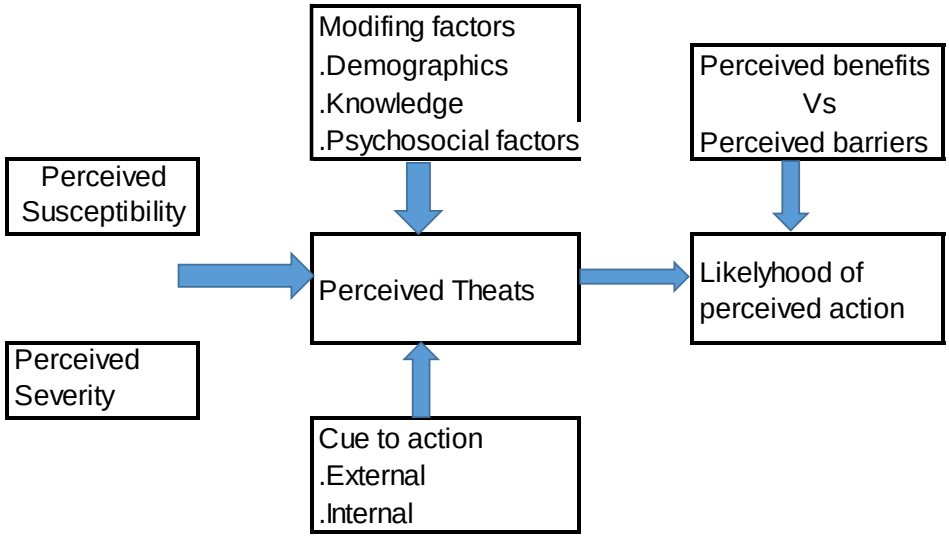


Figure 3. 1: **Constructs of Health Belief Model**
(Source: Orlowski 2015:100)

3.4.1.1 Perceived susceptibility

The subjective belief that a person is vulnerable to a specific health condition, or its consequences is referred to as perceived susceptibility (Sharma 2017:61). A cross-sectional study conducted in Northeast Thailand on sugarcane factory workers using a health belief model found a moderate level of perceived susceptibility among 83.16% of participants, a good level of 10.37%, and a poor level of 6.47% of the participants (Panakobkit, Sakunkoo & Chamroen 2019:8). Clients identified as positive in this study consider how they were exposed to HIV rather than the medication they take on the date of diagnosis. As a result, rather than same-day ART initiation, ART initiation may necessitate additional medication adherence support after the clients have stabilised.

3.4.1.2 Perceived severity

Perceived severity refers to a person's subjective belief about how severe the negative impact of that exposure is perceived to be (Sharma 2017:62). According to Sharma (2017:62), perceived severity varies depending on individual knowledge. In this study, HIV patients' perceptions of HIV outcomes were found to influence ART initiation, which in turn led to other health outcomes. A study conducted in Ethiopia to assess depression among adult HIV patients found that 14.6% of the patients had symptoms, and of the majority of participants, 76.4% had been on ART for more than two years (Gebrezgiabher, Abraha, Hailu, Siyum, Mebrahtu, Gidey, Abay, Hintsa & Angesom 2019:3). Gebrezgiabher et al (2019:3) stated that patients who had a history of ART adverse drug side effects were 4.7 times more likely to be depressed than those who did not have a drug side effect. Furthermore, Gebrezgiabher et al (2019:3) findings showed that depression was found to be 2.4 times more likely in those who live alone than in those who live with their parents. This clearly showed patients that perceived severity has a negative impact on their HIV care and that treatment should be addressed through counselling.

3.4.1.3 Perceived barrier

Perception of barriers refers to beliefs about the actual and perceived cost of adopting a new health behaviour (Sharma 2017:63). Perceptions of time, financial cost, or perceived benefits can all be barriers. A study conducted in Punjab, Pakistan on HIV misconceptions among married women found that 83.1% of ever married women believe HIV can be transmitted through mosquito bites, while 79.3% believe HIV can be transmitted through sharing food with an HIV-positive person (Rashid & Chand 2019:38). A cross-sectional survey conducted in the United States of America in Taxes revealed that the most common barriers to delaying ART initiation were an unstable lifestyle (10%), a lack of readiness to begin ART (20%), and a patient's lack of knowledge (10%) (Mgbere et al 2018:4). Moreover, the proportion of providers who identified structural-related concerns as reasons for delaying ART is 7.5%, with poor social support, unstable housing, and transportation accounting for 5% (Mgbere et al 2018:4). This demonstrated that raising awareness, reducing HIV stigma, assessing HIV-related medication adherence, and avoiding miscarriage may require time prior to starting ART medication on the date of diagnosis.

3.4.1.4 Perceived benefit

Perceived benefit refers to a person's expectation of positive outcomes or advantages from a method proposed to reduce the risk of disease or a harmful state because of certain behaviours (Sharma 2017:61). A cross-sectional analytical study of sugarcane factory workers in Northeast Thailand found that 89.46% of sugar factory workers perceived good benefits, 10.20% perceived moderate benefits, and 0.34% perceived poor benefits (Panakobkit et al 2019:8). For their patients' quality of life to improve, healthcare team providers in ART clinics were expected to provide more value for the perceived benefit of ARVs. Healthcare providers should emphasise the perceived benefits of same-day ART during counselling sessions for same-day ART initiation. This approach aims to minimise perceived barriers to treatment initiation by highlighting the advantages of immediate access to ART.

3.4.1.5 A cue to action

A cue to action is an external or internal precipitating force that causes a person to feel compelled to engage in a specific health behaviour (Sharma 2017:63). According to Sharma (2017:61), this may have occurred when a person is motivated and perceives a beneficial action, which frequently occurs when some external or internal cue triggers action. According to the findings of a study on HIV prevention perceptions among Christians in Benin City, "He does not use his church pulpit to reinforce the various HIV prevention strategies presented in mass media such as newspapers, radio, and television." Instead of viewing HIV and its consequences as a social issue that affects both Christians and non-Christians, the pastor took a moralistic stance that asserts that prostitutes are sinners and Christians are believers and righteous, insinuating that HIV infects prostitutes and promiscuous people, according to P1. As a result, it was argued that Christians should not be concerned about HIV" (Usadolo 2019:6). This demonstrated that external factors that have a greater influence on medication must be addressed prior to initiating ART on the same-day of diagnosis.

3.4.2 Theory of reasoned action/ Theory of planned behaviour

Martin Fishbein and Icek Ajzen developed the theory of reasoned action with the goal of identifying determinants of volitional, or under an individual's control, behavioural

decisions (Rogelberg 2017:1608). Furthermore, the theory of reasoned action holds that attitudes, subjective norms, and perceived control all work together to determine the likelihood of an individual performing a specific action (Figure 3.2). According to the theory of reasoned action (TRA), behavioural intentions are the most closely related to behaviour, and intentions are determined by attitudes towards the target behaviour and subjective-normative perceptions of the behaviour (Wenzel 2017:1611).

Wenzel (2017:1611) defined the theory of planned behaviour (TPB) as an extension of the TRA that included the additional construct of perceived control over behaviour performance. According to Ajzen (2020:2), behavioural intentions are determined by three factors: attitude towards the behaviour, subjective norm regarding the behaviour, and perceived behavioural control, which are discussed further below.

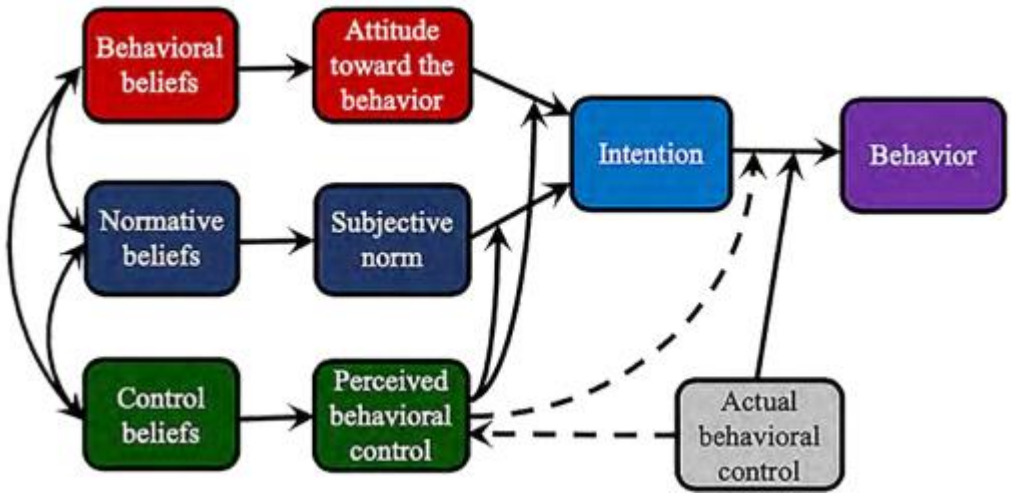


Figure 3. 2: **The theory of Reasoned Action/Theory of planned behaviour (Ajzen 2015:126)**

3.4.2.1 Attitude to the behaviour

Attitude towards the behaviour is assumed to be a function of readily accessible beliefs about the likely consequences of the behaviour, known as behavioural beliefs (Ajzen 2020:2). A behavioural belief, according to Ajzen (2020:2), is a person's subjective probability that when engaging in a behaviour of interest, it will result in a specific outcome of experience. Similarly, Miller (2016:82) asserts that attitudes are formed by beliefs about the likely outcomes of performing the behaviour multiplied by evaluations of those

outcomes. Rogelberg (2017:1608) defined attitudes as beliefs about the target behaviour that make one feel positive or negative about engaging in it.

Rogelberg (2017:1608) further stated that attitudes are determined by a person's evaluations of the outcomes that will occur when a person believes that a behavioural result will produce a positive outcome that the individual values. Thus, one's attitude towards same-day ART may be based on beliefs and knowledge about the medication that can be given to someone and how good or bad those outcomes will be. Similarly, provider counselling capacity and medication knowledge influence the success of same-day ART initiation.

3.4.2.2 Subjective norm

Subjective norms are social pressures to perform a behaviour based on normative beliefs (Rogelberg 2017:1608). Subjective norms are determined by how motivated a person is to comply with the wishes of others, according to Rogelberg (2017:1609). Miller (2016:82) opines that the subjective norm is derived from beliefs about what specific referents, such as a spouse, friends, or a medical practitioner, believe one should do, which are weighted by the motivation to comply with the views of those significant others. This is the most important behaviour that requires time to maintain medication adherence. Before starting medication, friends, families, and partners will be stigmatised.

3.4.2.3 Perceived behavioural control

Perceived behavioural control is founded on control beliefs that are concerned with the presence of factors that can facilitate or impede behaviour performance (Ajzen 2020:2). Control factors, according to Ajzen (2020:2), are required skills and abilities; availability or lack of time, money, and other resources; and cooperation from others. Ajzen (2020:2) continues to state that a control belief is a person's subjective likelihood that a given facilitating or inhibiting factor will be present in the situation of interest. Actual behavioural control is assumed to moderate the effect of intention on attitude and subjective norm, while perceived behavioural control is assumed to moderate the effect of attitude on behaviour (Ajzen & Kruglanski 2019:776). It is one of many common factors that influence medication success and retention in HIV care in resource-limited countries like Ethiopia, which is why it is considered important in this study.

3.5 APPLICATION OF HEALTH BEHAVIOUR THEORY

This study was guided by health behaviour theory in order to evaluate the factors that have resulted in the lost to follow-up (LTFU) of patients who have started on same-day ART initiation and to describe the benefits and challenges associated with same-day antiretroviral initiation. Among health behaviour theories, the health belief model (HBM) and the theory of reasoned action (TRA) were chosen to guide this study. Following the discussion and review of the literature, these two theories were applied in various ways to evaluate same-day ART initiation and factors related to LTFU, allowing the researcher to develop strategies for ART initiation.

The health belief model (HBM) has five constraints that were applied to both the healthcare provider's team working in an ART clinic and patients on same-day ART, as discussed above. The health belief model is a cognitive value expectancy theory that provides a framework for understanding the perceptions of same-day ART initiation and retention in HIV care among healthcare providers, case managers, adherence supporters, and clients receiving ART. The health belief model allows us to comprehend the perceived susceptibility, severity, or threat of a specific health problem, as well as the perceived benefits and barriers to its recommended solution. It also takes into account 'cues to action,' which play a role in decision-making regarding a specific behaviour on the part of both healthcare providers and patients.

According to the theory of reasoned action (TRA), behavioural intentions are the most closely related to behaviour, and intentions are determined by attitudes towards the target behaviour and subjective-normative perceptions of the behaviour (Wenzel 2017:1611). The theory of reasoned action proposes a general sequence in which attitudes and subjective norms co-determine patients' behavioural intentions towards same-day ART initiation. This will assist patients and healthcare workers in expressing their intentions to initiate ART.

3.6 SUMMARY

This chapter provides a detailed explanation of the theory used to guide this study. Health behaviours, health behaviour theory, and the application of these theories to this study were discussed. It was shown that the importance of theory has been discussed in detail.

The health belief model and the theory of reasoned action were selected as theories to guide the study. The next chapter will discuss the design and methodology used in this research.

CHAPTER 4
RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

The preceding chapter discussed the theoretical framework adopted in the study. On the other hand, the current chapter presents and discusses the research design and methods adopted and applied in this study. In that regard, the chapter details the setting, population, sampling, data collection instrument development, pre-testing of data collection instruments, data collection methods and analysis, validity and reliability, as well as the applicable ethical considerations.

4.2 RESEARCH OBJECTIVES AND QUESTIONS

This study aims to evaluate same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV care in Ethiopia. Organised into three distinct phases, qualitative exploration, quantitative evaluation, and strategies development, the study seeks to cover the benefits and challenges of same-day ART related viral suppression, patient retention, and healthcare delivery. By addressing specific research questions tailored to each phase, this study aims to inform strategies that enhance treatment initiation protocols and improve long-term health outcomes for HIV patients in Ethiopia. The research objectives and questions are as follows:

The objectives of the study are listed in the context of the following three phases:

Phase 1: Qualitative phase

- To explore and describe same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV Care in Ethiopia.

Phase 2: Quantitative phase

- To evaluate same-day ART initiation regarding retention of patients in HIV care at the healthcare facility level in Ethiopia and
- To evaluate same-day ART initiation regarding viral suppression of patients in HIV care at the healthcare facility level in Ethiopia.

Phase 3: Strategies development and validation

- To develop strategies for same-day ART initiation, tracing HIV patients who are lost to follow-up and viral load monitoring mechanisms.
- To validate the developed strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and enhancing viral load monitoring mechanisms.

In alignment with the research objectives, the research questions are also organised according to the corresponding three phases outlined below:

Phase 1: Qualitative phase

The grand tour question was: “How will same-day ART initiation status be associated with viral suppression and retention in HIV care in Ethiopia?” This was followed by the below-cited probing questions:

- What are the benefits encountered with the initiation of same-day ART?
- What are the challenges encountered with the initiation of same-day ART?
- What are the factors that led to lost to follow-up for patients started on same-day ART from HIV care?

Phase 2: Quantitative phase

- How can same-day ART initiation be evaluated regarding retention in HIV care at the healthcare facility level in Ethiopia?
- How can same-day ART initiation be evaluated regarding viral suppression at the healthcare facility level in Ethiopia?

Phase 3: Strategies development and validation

- What strategies can be developed to assist in same-day ART initiation, tracing HIV patients who are lost to follow-up, and viral suppression monitoring mechanisms?
- How can the developed strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and enhancing viral load monitoring mechanisms be validated?”

4.3 RESEARCH SETTING

A research setting relates to the physical place, as well as the prevalent socioeconomic and cultural contexts of the study (Brink et al 2018:188; Grove & Gray 2019:59). Meanwhile, Polit and Beck (2017:958) also state that the research setting should be described to provide readers with enough information to assess the findings’

transferability. Accordingly, the study was undertaken at two purposively selected healthcare facilities in the towns of Adama and Bishoftu, located in the East Shewa Zone of Oromia Regional State, Ethiopia (refer to Annexure 42 for a map of the setting of the main study site).

For the purpose of this study and its ethical considerations, the healthcare facility from Adama Town was referred to as “Healthcare Facility 1,” and the healthcare facility from Bishoftu Town was referred to as “Healthcare Facility 2.” The pre-testing setting (refer to Annexure 43 for the pre-testing healthcare facility map) occurred at two specific health care facilities in Adama Town in the East Shewa Zone of Ethiopia. For compliance with ethical considerations, these settings were referred to as “Healthcare Facility A” and “Healthcare Facility B,” respectively. The details of the research setting are discussed in the ensuing section.

4.3.1 Ethiopia

Ethiopia constitutes one of the Sub-Saharan countries and consists of eleven national regional states and two city administrations with 840 districts. According to World Bank (2019:1) population estimates, Ethiopia's population is 108.4 million, divided among approximately 80 ethnic groups: Oromo 34.9%, Amhara 27.9%, Tigray 7.3%, Sidama 4.1%, Welaita 3.3%, Gurage 2.8%, Somali (Somalie) 2.7%, Hadiya 2.2%, Afar 6.6%, and others 12.6%. Furthermore, according to the World Bank (2019:1), Ethiopian Orthodox Christians account for 43.8% of the population, followed by Muslims at 31.3%, Protestants at 22.8%, Catholics at 0.7%, Traditionalists at 0.6%, and others at 0.8%.

A household-based national survey conducted between October 2017 and April 2018 in urban Ethiopia showed that the prevalence of HIV among the 15–64-year-old age cohort ranged from 0.8% to 5.7% across Ethiopian regions (Ethiopian Public Health Institute 2020:2). Based on the current President’s Emergency Plan for AIDS Relief (PEPFAR) Ethiopian country operational plan (PEPFAR Ethiopia 2019:5) for the estimated PLHIV, about 72% know their HIV status, and of those who are cognizant of their status, 98.6% report current use of antiretroviral therapy (ART). According to the PEPFAR Ethiopian country operational plan (PEPFAR Ethiopia 2022:10), 426,464 people were receiving ART in 2021.

4.3.2 Oromia Regional State

Oromia is the largest region in Ethiopia in terms of land mass and population, occupying approximately 34% of the land in Ethiopia and accounting for 37% of the population (UNICEF 2019:5). According to UNICEF's (2019:5) situational analysis of children and women, the Oromia regional state population is young, and people less than 18 years of age account for 54% of the population of the region. According to the Ethiopian demographic health survey, the fertility rate in the Oromia region is higher than the national average, which is 5.4 compared to the national fertility rate of 4.6 (Federal Democratic Republic of Ethiopia, EDHS 2016:79).

The Oromia region has 18 zones, 12 town administrations, 307 woredas, 6531 rural areas, and 490 kebeles (Oromia Regional Health Bureau HIV Standard Operating Procedure 2015:1). According to the Oromia Regional Health Bureau Standard Operating Procedure (2015:1), the adult HIV rate of prevalence in the region is estimated to be 0.8%. According to the Ethiopian Public Health Institute's (Ethiopian Public Health Institute 2021:12) HIV estimation for 2020, about 186,074 people are living with HIV. The district health information system 2 (DHIS2) report showed that by the end of 2020, 112,420 patients were alive and active on antiretroviral treatment in Oromia Regional State (Federal Democratic Republic of Ethiopia 2020:11).

4.3.3 East Shewa Zone

East Shewa is one of the 18 zones of the Oromia Regional State in Ethiopia. East Shewa is located in the middle of Oromia, connecting the Western regions to the Eastern regions. This zone is bordered by the West Arsi Zone in the south, the Southern Nations, Nationalities in the south-west, and the Peoples Region; the South-West Shewa and Oromia Special Zone Surrounding Finfinne in the west; the North Shewa in the north-west; the Amhara Region in the north; the Afar Region in the north-east; and the Arsi in the south-east. Meanwhile, its westernmost reach is defined by the course of the Bilate River.

The towns and cities in East Shewa include Dukam, Galan, Tullu Dimtu, Basaka, Akaki, Bishoftu, Metehara, and Batu Dambal, and the capital of the zone is Adama Town (Water and Sanitation Program in collaboration with Engineer Tequam Water Resources

Development and Environment Consultancy 2018:2). The three largest ethnic groups that exist in the East Shewa zone are the Oromo (74.06%), the Amhara (15.39%), and the Gurage (3.82%); all other ethnic groups constitute 6.73% of the population. Most of the inhabitants practice Ethiopian Orthodox Christianity (69.33%), while 16.18% of the population is Muslim, 8.4% of the population practices Protestantism, and 5.08% practice traditional beliefs (WSP Socio-Economic Assessment in Oromia 2018:4).

4.3.3.1 Adama Town

Adama is the second-largest city in the Oromia region after Addis Ababa (Finfinne), the capital city of the region, which is 100 kilometres away. Adama Town is the centre of different training and commercial centers. Adama is the second-most populous city in Ethiopia and one of the fastest-growing cities in the country. It is the second largest city in the Oromia Region, features industries and manufacturing enterprises, and is strategically located on the main road linking Addis Ababa to Djibouti.

The DHIS2 report states that more than 12, 000 patients are currently receiving antiretroviral therapy in the town in public and private healthcare facilities across the town (Federal Democratic Republic of Ethiopia 2020:11). In this town, ART services are provided by one public hospital, three private hospitals, and more than a dozen health centers. Two healthcare facilities, one for pretesting and one for the main study, were purposefully selected from Adama Town for this study by the researcher.

4.3.3.2 Bishoftu Town

Bishoftu is located 47 kilometres Southeast of Addis Ababa. At present, 23,410 people in the town are recorded to have HIV; 5601 of these are women. Of the total number of adult HIV-positives, 4164 are registered and actively followed in ART clinics; 2827 are women (Federal Democratic Republic of Ethiopia 2020:11). There are four healthcare facilities providing ART services in Bishoftu Town. Two of the four healthcare facilities, one for pre-testing and one for the main study, were purposefully selected for this study in Bishoftu.

4.4 PHILOSOPHICAL ASSUMPTIONS

Philosophical assumptions encompass our beliefs about ontology (the nature of reality) and epistemology (how we understand and research the world, including the validation of our understanding) (Cohen et al 2018:32). According to Cohen et al (2018:32), philosophical assumptions guide inquiry logics, which include research purposes, questions, designs, methodologies, sampling, data collection and analysis, and reporting. Additionally, they provide guidelines for mixing methods in empirical research and studying phenomena. Socio-political commitment involves considering whose interests and purposes are served by the research and the political stances it supports. Creswell and Poth (2018:326) also defined philosophical assumptions consist of a stance towards the nature of reality (ontology), the role of values in the research (axiology), the language of research (rhetoric), and the methods used in the process (methodology). Creamer (Creamer 2018:94), explained four dimensions as ontology (reflects philosophical assumptions about the nature of truth and reality and whether it is external or constructed), epistemology (reflects philosophical assumptions about the relationship between the knower and reality and the participant and what constitutes credible or warranted conclusions or inferences), methodology, and axiology (reflects philosophical assumptions about the place of values in empirical research).

Philosophical assumptions are the fundamental beliefs about reality, knowledge, and research methods that guide one's approach to inquiry, providing a model or framework for observing and understanding what we see and how we understand it. The philosophical underpinnings of the research paradigm, methodologies, approach, and design used in this study are explained in the section below. This section also justifies their application to the research on same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV. This explanation provides a clear understanding of how the study was conducted.

4.4.1 Ontology

Creswell and Creswell (2018:60) define ontology as a philosophical stance on the nature of reality, an understanding of what is real and fundamental. This highlights ontology as a philosophical perspective concerning the nature of reality that involves an understanding and interpretation of what constitutes real and essential elements in the

world. Flick (2022:73) defines ontology as being concerned with the nature of reality, emphasizing that your ontological stance is closely tied to your beliefs about the best way to understand reality. This explains ontology as a concept focused on understanding the essence of reality. Additionally, it implies that your perspective on ontology is deeply connected to your beliefs about the most effective method for comprehending what is real.

The researcher's ontological view in this study is grounded in the belief that reality is complex and multifaceted, best understood through a combination of qualitative and quantitative approaches. This view aligns with the pragmatism paradigm, which prioritises practical solutions and outcomes over adherence to a single philosophical stance. In Phase 1, the qualitative approach acknowledges the subjective experiences and perspectives of individuals, recognising that reality is shaped by personal and social contexts. Phase 2, the quantitative phase, reflects the belief that reality can also be measured and analysed through objective data and statistical methods, providing concrete evidence of patterns and associations. Finally, Phase 3 involves the development and validation of strategies, integrating insights from both qualitative and quantitative findings to create effective, real-world solutions. This ontological stance, therefore, embraces a pluralistic view of reality, where different methods contribute to a comprehensive understanding of same-day ART initiation and its association with viral suppression and retention in HIV care.

4.4.2 Epistemology

Epistemology is the branch of philosophy dealing with knowledge and justification (Johnson & Christensen 2020:80). Polit and Beck (2019:9) stated the philosophical question for epistemology as: "What is the relationship between the inquirer and the phenomenon being studied?" Epistemology asks the following questions: What is the relationship between the knower and what is known? How do we know what we know? What counts as knowledge? These questions underscore the importance of examining the processes and foundations of knowledge acquisition and validation.

The researcher's epistemological view in this study is rooted in a pragmatic approach to understanding knowledge. This perspective holds that knowledge is best acquired through a combination of qualitative and quantitative methods, each providing unique and

complementary insights. In Phase 1, the qualitative approach is employed to gather in-depth, subjective knowledge from individuals' experiences and perspectives, acknowledging the nuanced and contextual nature of reality. Phase 2 involves a quantitative approach, emphasising the importance of objective, measurable data to identify patterns and statistically validate findings. Finally, Phase 3 integrates these insights to develop and validate practical strategies for improving HIV treatment outcomes. This epistemological stance values the interplay between different types of knowledge, recognising that a comprehensive understanding of a phenomenon arises from both the subjective and objective dimensions of inquiry. It emphasises that knowledge is not only a reflection of reality but also a tool for practical problem-solving in real-world contexts.

4.4.3 Axiology

The term axiology is derived from the Greek words axia, meaning “worth” or value, and logos, meaning “science” or "reason,” which refers to the study of value and valuation (Fetters 2020:58). Axiology is the branch of philosophy that addresses values and ethics (Johnson & Christensen 2020:81). Axiology is concerned with the theory of value that addresses the ethics that guide the design and inform the execution of a research project (Flick 2022:73). This indicates that axiology addresses the moral and ethical considerations that underpin research practices and decision-making.

The researcher’s axiological view in this study emphasises the importance of ethical considerations and the value of practical outcomes. Adhering to the pragmatism paradigm, the researcher is committed to conducting ethically sound research across all three phases of the study. In Phase 1, the qualitative phase, ethical approval and informed consent from participants were obtained to ensure respect for their autonomy and confidentiality. In Phase 2, the quantitative phase, ethical approval from participating healthcare facilities was utilised to access clinical records, ensuring the ethical handling of sensitive data. In Phase 3, consent to conduct strategy validation was received from healthcare experts, ensuring that the strategies developed are not only effective but also ethically sound and beneficial to the community. This axiological stance underscores the researcher's commitment to integrity, respect for participants, and the practical value of research outcomes in improving HIV treatment practices.

4.4.4 Methodology

The term methodology is derived from the Latin methodologia or French méthodologie "methodology," which refers to the system of methods a mixed methods researcher employs when conducting research that includes the data collection approaches used (Fetters 2020:58). Methodology is the identification, study, and justification of research methods (Johnson & Christensen 2020:81). These highlight the importance of understanding and rationalising the research methods chosen for conducting effective and credible research.

The researcher's methodological view for this study is rooted in the pragmatism paradigm, employing a mixed methods approach with an exploratory sequential design. This methodology was chosen due to the novel or relatively unknown nature of the phenomenon under investigation. In Phase 1, qualitative methods were used to explore and understand the experiences and perspectives of individuals, providing rich, contextual insights into the benefits and challenges of same-day ART initiation regarding retention in HIV care and viral suppression. In Phase 2, quantitative methods were employed to measure and analyse the data, validating and building upon the qualitative findings with statistical rigor. Phase 3 involved developing and validating strategies based on the combined insights from the previous phases. This methodological approach allowed the researcher to comprehensively explore the phenomenon, using qualitative insights to inform quantitative analysis and, ultimately, to create practical and effective strategies for improving HIV treatment outcomes.

4.4.5 Rhetoric

The term rhetoric is derived from the Greek rhētorikos and means "eloquently expressed" or "rhetoric," which fundamentally means to persuade; that is the language of argumentation (Fetters 2020:58). Rhetoric is the art of the science of language, oral and written communication, and argument (Johnson & Christensen 2020:81). Hence, the rhetoric refers to the science of writing effectively and persuasively. Creswell and Plano Clark (2018:615) frame this as the question, "What is the language of the research?"

The researcher's rhetorical view in this study emphasizes clear, effective, and persuasive communication tailored to diverse audiences. This involves presenting qualitative findings

in a narrative style that captures the nuanced experiences of participants. Quantitative results are conveyed using precise, objective language and statistical evidence to appeal to scientific and medical communities, ensuring the credibility and reliability of the results. Throughout all phases, the researcher uses rhetoric to bridge the gap between different methodological approaches, synthesizing qualitative and quantitative data into coherent, compelling arguments that advocate for the practical implementation of strategies developed in the study. The ultimate aim is to persuade policymakers, healthcare providers, and the broader community of the value and effectiveness of same-day antiretroviral therapy initiation in improving HIV treatment outcomes in which Scientific writing was maintained throughout the study.

4.5 RESEARCH PARADIGM

Different scholars define the paradigm in different ways. For instance, Brink et al (2018:18) describe a paradigm as a means to examine natural phenomena. Meanwhile, Baran and Jones (2016:44) define a paradigm as a method for attaining clarity of ideas within a normative conception of logic, within the norms for continuing, self-correcting inquiry directed towards truth. Additionally, Rossman and Rallis (2017:89) also define a paradigm as a shared understanding of reality that represents a world view.

According to Creswell and Creswell (2018:44), four philosophical worldviews or beliefs are widely used in research, namely: constructivism, post-positivism, transformativism, and pragmatism. In this study, the researcher adopted and applied a mixed-methods approach to respond to the research questions. The research paradigm for mixed methods research is pragmatism, where a pragmatic world view focuses on research problems in the social sciences and searches for solutions to the research problems using pluralistic approaches (Creswell & Creswell 2018:41). The pragmatism philosophy, which was used in this study, was discussed below.

4.5.1 Pragmatism

Pragmatism is, in essence, the extension of the scientific method to all areas of intellectual inquiry, including psychology, sociology, and philosophy (Delaney 2018:74). Pragmatism is a paradigm with a realist view that acknowledges diversity and complexity and sets aside debates about philosophy in favour of what works in a particular setting or

for a particular set of research questions (Creamer 2018:353). According to Leedy and Ormrod (2021:456), pragmatism is defined as a philosophical perspective based on the idea that absolute "truths" about certain phenomena and people's constructed beliefs about those phenomena are both legitimate objects of study; it is also known as realism. One of the ways that pragmatism is a comfortable framework for a variety of approaches to educational research is its emphasis on flexibility of choice of methods to match the purposes of the inquiry and, sometimes, to the needs of the setting where the research is conducted (Creamer 2018:96). According to Creamer (2018:96), the pragmatist's perspective is based on philosophical assumptions and should drive operational choices about how to design and conduct research. Therefore, pragmatism enables mixed-methods researchers to access multiple data sources, diverse perspectives, different assumptions, and alternative approaches for gathering and analysing information (Creswell & Creswell 2018:48).

According to Baran and Jones (2016:46), researchers who use a pragmatic approach are free to use any of the strategies, techniques, and procedures that are conducive to quantitative and qualitative approaches. Therefore, the pragmatist philosophy was opted for in this study for the purpose of obtaining a more detailed context of same-day ART initiation benefits for viral suppression and retention in HIV care. Furthermore, pragmatism benefited the researcher in developing strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and developing viral suppression monitoring mechanisms.

4.6 RESEARCH DESIGN

A research design refers to the plan or framework used to guide the collection and analysis of data (Pandey & Pandey 2015:18). Furthermore, Pandey and Pandey (2015:18) stated that research design is a blueprint that is followed in completing a study, and it is a map that is usually developed to guide the research. Creswell and Plano-Clark (2018:97) define research designs as procedures applied in the collection, analysis, interpretation, and reporting of data. Brink et al (2018: 81) inform us that the research design relates to the researcher's logical steps aimed at answering the research questions. According to Creswell and Creswell (2018:60), research designs are inquiry types within qualitative, quantitative, and mixed methods approaches that facilitate particular procedural directions in a given study. In this study, an exploratory sequential

mixed methods design was selected to evaluate same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV care at health facilities in Ethiopia.

4.7 RESEARCH METHODOLOGY: MIXED METHOD APPROACH

A research methodology is a strategy encompassing principles, processes, procedures, and techniques to resolve the identified research problem that provides the superstructure, while methods are like bricks and mortar required to build up the edifice (Mukherjee 2019:20). According to Mukherjee (2019:20), research methodology provides room for creative and out-of-the-box thinking that pervades the entire research exercise, right from data collection through data analysis and interpretation of findings to the dissemination of the research output by way of documentation and publication. Research methods are a variety of tools that are used in different kinds of research. They are techniques used to conduct research, provide tools for collecting and analysing data, and finally come to certain conclusions (Walliman 2018:53). In this study mixed methods approach was used.

Mixed methods research is defined by the utilisation of both a qualitative and quantitative approach within one research project that can take many forms, as determined by the type of mixed methods research design (Flick 2022:641). Creswell and Plano Clark (2018:53) explained the advantage of mixed methods research to harness positive aspects that offset the weaknesses of both quantitative and qualitative research. A fundamental assumption underlying mixed methods research is that quantitative or qualitative research is insufficient by itself to comprehend and unravel a complex research problem. Creswell and Plano Clark (2018:56) also discussed the disadvantages of mixed methods research, stating that it is not appropriate for every researcher or research problem.

Creswell and Plano Clark (2018:56) intimate further that mixed methods research requires researchers' specific skills, resources, and time for protracted data acquisition and analysis, as well as the ability to educate others who may be unfamiliar with the fundamental concepts of mixed methods research. The three mixed methods commonly used in nursing and health research are: (1) convergent mixed methods; (2) explanatory sequential mixed methods; and (3) exploratory sequential mixed methods (Creswell &

Creswell 2018:52). In this study, the researcher used exploratory sequential mixed methods, which are the designs of this study as discussed below.

4.7.1 Exploratory sequential mixed methods design

An exploratory sequential mixed methods design was utilised in this study in order to explore the factors that led to lost to follow-up of patients who have started on same-day ART, describe the benefits and challenges related to same-day ART initiation, and evaluate same-day ART initiation regarding retention and viral suppression of patients in HIV care. Furthermore, the above-cited design was utilised for developing same-day ART initiation strategies, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms.

Creswell and Creswell (2018:63) further inform us that exploratory sequential mixed method designs are an approach in which the researcher begins with a qualitative research phase with an exploration of the participants' views. The researcher analysed the qualitative data for the purpose of developing new variables, identifying scale types that could be prevalent in current instruments, or forming information categories that were further explored in the qualitative result. The researcher used entirely different samples for the qualitative and quantitative components. In this regard, the study was categorised into three (3) phases: Phase 1 was qualitative and interview-based; Phase 2 was quantitative and based on retrospective document analysis; and Phase 3 was based on strategies development and validation for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms. The population and sampling methods varied for each phase of the study. For the qualitative phase and strategies validation, a purposive sampling method was employed. In contrast, for the quantitative phase, a random sampling method was utilised. These three (3) phases are discussed hereafter.

4.7.2 Phase 1: Qualitative phase approach

A qualitative research method is a strategic approach by means of which a researcher focuses on a qualitative insight into a phenomenon, collecting and analysing opinions, attitudes, and beliefs to answer research questions (Boncz 2015:26). Patten and Newhart (2018:168) defined qualitative research as the data collection of words that is going to be

analysed. Qualitative research involves providing a nuanced description of individuals without counting, and analysis looks for patterns or interesting details in these descriptions without trying to employ statistics or provide firm numerical estimates (Boyle & Schmierbach 2019:58).

According to Boncz (2015:26), qualitative investigations carry out a detailed and thorough exploration of the topic examined and use a small sample, in which representativeness is not an objective. This phase was used to explore the factors that have led to lost to follow-up among patients who have started on same-day ART and to describe the benefits and challenges related to same-day antiretroviral initiation, which were the objectives of this study. Furthermore, the purpose of Phase 1 was to help in the development of research instruments that were used for data acquisition in the quantitative phase. Baran and Jones (2016:86) stated that the researcher uses the analysis of the qualitative results in order to develop Phase 2 (the quantitative phase) and to test or generalise the initial qualitative phase's exploratory results. The healthcare providers' team and patients who started on ART in selected healthcare facilities were interviewed using an interview guide. Exploratory and descriptive approaches were used.

4.7.2.1 Exploratory and descriptive design

4.7.2.1.1 Exploratory research design

The exploratory design used sequential timing, which begins with the acquisition and analysis of qualitative data in the first phase (Creswell & Plano-Clark 2018:123). Building on the exploratory results, the researcher conducts a development phase by designing a quantitative feature based on the qualitative results (Creswell & Plano-Clark 2018:114). Furthermore, in an exploratory sequential design, the researcher quantitatively tests the new feature, which is used to interpret how the quantitative results build on the initial qualitative results or how the quantitative results provide a clear understanding because of their grounding in the initial qualitative perspectives of participants (Creswell & Plano Clark 2018:123). An exploratory approach was used, which encompasses an initial qualitative data collection and analysis phase, followed by the quantitative data collection and analysis phase. The researcher used an exploratory approach to explore the factors that contributed to the lost to follow-up for patients who started on the same-day ART.

4.7.2.1.2 Descriptive research design

Descriptive refers to qualitative phenomena that cannot be measured quantitatively and depend on the specified attributes (Bairagi & Munot 2019:8). A descriptive approach is a method that can be used to seek information that uses numeric language to describe a population or phenomenon under study (Faulkner & Faulkner 2018:9). Descriptive research focuses on population attributes at a single point in time or on population changes over time (Houser 2015:258). In descriptive research design, the researcher observes a phenomenon, situation, or event by focusing on what is happening or how much has happened (Polit & Beck 2017:15).

Hence, in this study, the benefits and challenges related to same-day ART initiation regarding viral suppression and retention in HIV care were described in respect of the in-depth cell phone interviews with patients who started on same-day ART and healthcare providers working at ART clinics of selected healthcare facilities. The in-depth cell phone interviews allowed the researcher to gather rich data and insights into the phenomenon under study, which can inform future research and practice. Using a descriptive approach, the study sought to provide a detailed and accurate description of the benefits and challenges associated with same-day ART initiation from the perspectives of patients and healthcare providers.

4.7.2.2 Population

The population refers to the entire aggregation of the researcher's cases of interest or set of subjects (Brink et al 2018:116; Houser 2015:258). In that regard, Patten and Newhart (2018:71) describe the target population as the set of elements to which a researcher desires to apply the findings of a study.

In this study, the Phase 1 target population was patients who were started on same-day ART from the 1st of October 2017 until the 30th of October 2019, as well as healthcare providers working in the ART clinics of two selected healthcare facilities. The healthcare providers included in this study were physicians, nurses, case managers, and adherence supporters.

4.7.2.3 Sampling technique and sample

Sampling is the process of choosing a sample from a study population for the purpose of obtaining information that is pertinent to a phenomenon such that it represents the study population (Brink et al 2018:115). Similarly, Grove and Gray (2019:59) also defined sampling as a participant selection process on account of their representative attributes in relation to the population being investigated. In conducting research, it is usually impractical to study an entire population, so researchers draw a sample from a subset of the study population (Patten & Newhart 2018:87).

Non-probability purposive sampling was used in Phase 1 to recruit study participants from patients who started on the same-day ART therapy from the 1st of October 2017 until the 30th of October 2019. The healthcare provider teams comprised physicians, nurses, case managers, and adherence supporters working in the ART clinics of selected healthcare facilities. A key goal of sampling from a population is to ensure that the sample is as representative as possible; that is, the characteristics of the individuals in the sample are consistent with those of the larger population (Boyle & Schmierbach 2019:189). The participants were recruited based on the study population of each healthcare facility, and a 2:3 proportion was used to select the number of participants required from each healthcare facility.

Furthermore, inclusion criteria were also considered during the recruitment process (refer to 4.6.1.3). Healthcare providers were recruited from the ART clinics of healthcare facilities 1 and 2. The researcher randomly selected healthcare provider participants from a shared list of healthcare providers from the respective healthcare facility's human resources unit (refer to Annexure 44 for the list of healthcare facility providers received from healthcare facilities 1 and 2). Patients participating in the qualitative data collection were randomly selected from a list of patients started on same-day ART shared by data clerks from the respective healthcare facilities (refer to Annexure 45 for a sample list of patients received from Healthcare Facilities 1 and 2).

The total sample from Healthcare Facility 1 was eighteen (18), consisting of five (5) patients, three (3) physicians, two (2) case managers, three (3) adherence supporters, and five (5) nurses. The total sample from Healthcare Facility 2 was twelve (12), consisting of five (5) patients, one (1) physician, two (2) managers, two (2) adherence

supporters, and two (2) nurses. Thus, the total sample for both healthcare facilities was thirty (30) participants. Finally, the sample size was determined largely on the basis of data saturation.

4.7.2.4 Inclusion and exclusion criteria

Inclusion criteria are the researcher's pre-determined standards or considerations for a subject to be considered in determining whether or not it should be included in the selection procedure (Indrayan 2019:178). Polit and Beck (2017:366) also stated the inclusion criteria as requirements or attributes of eligibility that specify the study population.

In this study, the following inclusion criteria were applied to identify eligible participants:

- All participants who were older than 18 years of age;
- Patients who were on same-day ART from the 1st of October 2017 until the 30th of October 2019;
- Patients actively in HIV care (currently on ART) and
- Physicians, nurses, case managers, and adherence supporters working in ART clinics at selected healthcare facilities.

The following exclusion criteria were applied to identify ineligible participants:

- Participants who were less than 18 years old;
- Patients who were not currently in HIV care and had not started on same-day ART;
- Patients who started on ART before the 1st of October 2017 and after the 31st of October 2019 and
- Physicians, nurses, case managers, and adherence supporters who are not working in the ART clinics of selected healthcare facilities.

4.7.2.5 Development of data collection instrument

A research instrument is a data collection tool that may vary in complexity, interpretation, design, and administration (Pandey & Pandey 2015:57). A self-designed interview guide was the main data collection instrument in this study. An interview guide is a qualitative data collection instrument formulated by the researcher based on one's disciplinary and institutional affiliations and specific research contexts (Flick 2022:580). The purpose of

using an interview guide was to learn more about the subject under study from the first-hand perspectives of those with lived experience of the investigated phenomenon. The interview guide addressed the qualitative objectives of this study, which were to explore the factors that have led to lost to follow-up among patients who have started on same-day ART and to describe the benefits and challenges related to same-day ART initiation. According to Flick (2022:659), potential follow-up topics might be suggested in the interview guide should participants not mention the required information. The researcher developed two separate interview guides for the patients (refer to Annexure 34 for an interview guide for ART patients) and healthcare providers (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team). The interview guides were comprised of study participants' demographic data, grand tour questions, and follow-up questions.

The grand tour question was: "How was same-day ART initiation associated with viral suppression and retention in HIV care in Ethiopia?" This was followed by probing questions. The developed interview guides were reviewed at the town health office level by experts working in the HIV programme. Finally, the interview guide was validated and approved by the supervisor and was ready for pre-testing. The pre-testing of interview guides was discussed as follows:

4.7.2.6 Pre-testing of data collection instrument

Pre-testing of data collection instruments is one step towards determining whether an instrument is valid for its purpose to truly measure its originally intended purpose (Leedy & Ormrod 2021:192). According to Kumar (2019:334), a pre-test should be carried out under the actual phenomenon of a study population, like the actual study population. The aim of the pre-testing of the interview guide was to check the relevance, completeness, and accuracy of the data collection instrument.

Participants for the pre-testing interview guide were healthcare providers, being physicians, nurses, case managers, and adherence supporters working in ART clinics, and patients who have started on same-day ART from the 1st of October 2017 until the 30th of October 2019 at selected healthcare facilities for pre-testing. The pre-testing of the interview guide for patients and the healthcare providers' team was conducted at two selected healthcare facilities in Adama town. The two healthcare facilities were

purposefully chosen and, for the purpose of ethical consideration, named "Healthcare Facility A" and "Healthcare Facility B." These healthcare facilities offer same-day ART services that are similar to the study setting but operate independently from the targeted setting of this study. This approach was adopted to ensure impartiality and avoid bias in the study.

Prior to pre-testing the interview guide on the 23rd of October 2020, the researcher sent essential documents via email to the data clerks and human resources units of each healthcare facility. These documents included an ethical clearance certificate issued by UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), study approval granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), study approval letters from the Adama Town health office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), approval letters from Healthcare Facility A and Healthcare Facility B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B) and confidentiality binding agreement signed by the researcher (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in Englidh and Annexure 19 for confidentiality binding agreement signed by the researcher for patients in Afan Oromo). The purpose of this email communication with the healthcare facility's human resource unit head and data clerk was to request the provision of two lists: one containing patients initiated on same-day ART and another comprising the email addresses and phone numbers of healthcare providers working in the ART clinic.

The researcher conducted face-to-face meetings with the head of the human resources unit and data clerks that clarified the study's purpose, emphasised confidentiality, and provided evidence of signing a confidentiality binding agreement (refer to Annexure 18 for the confidentiality binding agreement signed by the researcher for healthcare providers in English and Annexure 19 for the confidentiality binding agreement signed by the researcher for patients in Afan Oromo). Furthermore, the healthcare facility's ART clinic data clerks and the head of the human resources unit were notified about this study by sharing a copy of the approved permission to conduct the study from the healthcare facility's ethical review board (refer to Annexure 12 for granted approval to conduct pre-testing at Health Facility A and Annexure 13 for granted approval to conduct pre-testing

at Health Facility B). The respective healthcare facility human resource unit heads and ART clinic data clerks have signed a confidentiality binding agreement (refer to Annexures 20 & 22 for human resource unit heads of pre-testing sites and Annexures 21 & 23 for data clerks of pre-testing sites) to maintain participants' privacy and confidentiality when sharing participants' information with the researcher. The email addresses and phone numbers of healthcare providers and patients were received from the head of the human resources unit and the data clerks of respective healthcare facilities based on the verbal consent of each participant to share their information with the researcher. Furthermore, privacy and confidentiality measures included the researcher signing a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), conducting pre-testing via cell phone for in-depth interviews, and assigning numbers during the recording of interviews. Participants' names were not utilised, and to ensure anonymity, personal identities were not disclosed, with codes assigned to each list.

The researcher engaged both data clerks working in the ART clinic and the human resources unit head in pre-testing participant recruitment facilitation to minimise the potential risks associated with the COVID-19 pandemic, which was on level 4. This approach was also aligned with the University of South Africa's COVID-19 guidelines (refer to Annexure 3 for UNISA COVID-19 statement guidelines). Data clerks were selected for facilitation of patient recruitment by the researcher on the 20th of July 2020. They were selected to facilitate patients' recruitment since they are responsible for patient information management and can easily access patient information from the smart care database, and to receive permission from patients to share their phone numbers with the researcher.

Based on the granted approval to conduct pre-testing by the healthcare facilities (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B), data clerks extracted a list of patients who started on same-day ART, along with their respective cell phone numbers, from the smart care database. Before sharing the data with the researcher, code assignment was carried out by the data clerks for each list to maintain privacy. The researcher randomly selected patients who fulfilled inclusion criteria from the shared lists. Similarly, the lists of healthcare provider teams, being

physicians, nurses, case managers, and adherence supporters working in ART clinic rooms, including their cell phone addresses, were received from respective healthcare facilities human resources unit heads through email on the 23rd of September 2020. After receiving the list, study participants were selected randomly from physicians, nurses, case managers, and adherence supporters.

The total sample for pre-testing from Healthcare Facility A was six (6), consisting of two (2) patients, one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse. The total sample from Healthcare Facility B was five (5), consisting of one (1) patient, one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse. Thus, the total sample from both healthcare facilities was eleven (11) participants. Finally, data saturation was the primary determinant of the sample size. An in-depth individual cell phone interview was conducted to avoid the risk of a COVID-19 pandemic, which was on level 4. The participants' recruitment process and pre-testing details for the healthcare provider's team and patients are discussed separately below.

4.7.2.6.1 Pre-testing of data collection instrument for healthcare providers

Pre-testing was conducted during the COVID-19 pandemic on level 4. Based on UNISA COVID-19 pandemic guidelines (refer to Annexure 3 for UNISA COVID-19 statement guidelines), pre-testing was conducted remotely in the form of an individual in-depth cell phone interview. To avoid the risk of getting COVID-19 and due to restricted movement, the study participants recruitment was facilitated through the respective healthcare facility's human resources unit. The respective healthcare facility's human resources unit head was informed about this study through the healthcare facility's ethical review board, which had granted approval for the study. The approval letter was shared with the human resources unit by each healthcare facility's ethical review board in written form to secure their support for the researcher. In this regard, the human resource unit heads of respective healthcare facilities have signed a confidentiality binding agreement to keep healthcare provider information confidential when sharing their information with the researcher (refer to Annexure 20 for the signed a confidentiality binding agreement by the human resources unit head of Healthcare Facility A and Annexure 22 for the signed a confidentiality binding agreement by the human resources unit head of Healthcare Facility B).

Following this communication, the researcher undertook a face-to-face meeting with the head of the human resources unit, explained the study's objectives, and obtained their assistance in the healthcare providers' recruitment process. After the initial face-to-face communication with the healthcare facilities human resources unit heads on the 24th of July, 2020 Healthcare Facility A, and the 29th of July, 2020 Healthcare Facility B, the researcher emailed the ethical clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), approvals to conduct the study from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), Adama Town Health Office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), and healthcare facilities A and B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and 13 for granted approval to conduct pre-testing from Health Facility B), to the respective heads of human resources at each healthcare facility.

The purpose was to obtain email addresses and phone numbers of healthcare providers working in the ART clinic from each healthcare facility. The email addresses and phone numbers of healthcare providers were received from the head of the human resources unit, based on each participant's verbal consent to share their information details with the healthcare facility's human resources unit head, who then provided the information to the researcher. On the 28th of October 2020, during a routine site visit for work-related purposes, the researcher obtained the list of healthcare providers with their information from the human resource units at each healthcare facility. After receiving the list of healthcare providers from each healthcare facility, the researcher purposefully recruited the study participants from the list of physicians, nurses, case managers, and adherence supporters for individual, in-depth cell phone interviews.

This recruitment process took place from the 30th of October 2020 until the 2nd of November 2020. During the recruitment, the purpose of the study was explained to each participant via cell phone, and the researcher requested their voluntary participation in the study. For those who agreed to participate in this study, the researcher sent an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), an informed consent form (refer to Annexure 30 for informed consent form for healthcare providers in English), a signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and an interview guide (refer to Annexure 35 for an interview guide

for the ART clinic healthcare provider team) through email. The participants were also orientated by the researcher via cell phone on the information sheet and the informed consent forms and requested to sign the informed consent. Additionally, informed consent to record an in-depth cell phone interview was requested from participants (refer to Annexure 30 for the informed consent form for healthcare providers in English).

A signed informed consent form was received from each healthcare provider through email. The researcher also informed them that they had the right to withdraw from pre-testing at any time, even if they had signed informed consent, without penalty. The researcher downloaded an informed consent form signed by each participant, which was shared through email before the date of the in-depth cell phone interview. The researcher scheduled the interview based on their indicated date of availability, and different interview dates were set for each healthcare facility's participants. The participants from Healthcare Facility A were interviewed from the 3rd of November 2020 until the 8th of November 2020, while participants from Healthcare Facility B were interviewed from the 9th of November 2020 until the 14th of November 2020.

The participant's anonymity was maintained by assigning a unique code to each participant before the cell phone interview. Privacy was maintained by ensuring that the researcher had signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and pre-testing was also conducted by the researcher through a cell phone interview and that numbers were allocated to the interview records. Field notes were taken as back-up data during individual in-depth cell phone interviews. An interview guide was used (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team), containing the study participants' demographic information and grand tour questions. The demographic data was collected by the researcher as part of the data collection via cell phone before the recording of cell phone interviews.

The following grand tour question was followed-up with probing questions: "How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?" The healthcare providers team was interviewed on factors that have led to the loss of follow-up from HIV care for patients started on same-day ART; benefits and challenges encountered with the initiation of same-day ART; how patients initiated on same-day ART who were lost from HIV care will be traced; and strategies for

same-day ART initiation, retention in HIV care, and viral suppression. The total sample for pre-testing at Healthcare Facility A was four (4) participants: one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse.

The total sample from Healthcare Facility B was four (4) participants: one (1) physician, one (1) case manager, one (1) adherence supporter, and one (1) nurse. Thus, the total sample of healthcare providers for pre-testing from both healthcare facilities consisted of eight (8) participants. The participants in the pre-testing were not part of the main study, and they were informed of this information during recruitment. Individual in-depth cell phone interviews took 25-35 minutes since there was no additional information elicited from the participants after data saturation. The researcher then expressed his gratitude to the participants and thanked them for their active involvement, effort, and time. The cell phone records, completed interview guides, signed information sheets, and signed informed consent forms of the study participants were kept in a private, locked cabinet for safety and privacy. There was no modification to the interview guide after pre-testing.

4.7.2.6.2 Pre-testing of data collection instrument for patients

Pre-testing of the interview guide for patients was conducted during the COVID-19 pandemic, which was on level 4. To avoid the risk of the COVID-19 pandemic regulations, patients' recruitment was facilitated through the data clerks of each healthcare facility. Data clerks were selected to facilitate patients' recruitment processes since they were the primary contact for patients receiving ART services and had access to the smart care database, which contained patients' information. The data clerk at the healthcare facility's ART clinic received written notice, along with a copy of the approval letter for conducting the study, through the healthcare facility's ethical review board. This was done to secure their support for the researcher's access to the smart care database.

Following communication from the ethical review board to the data clerk, the researcher conducted a face-to-face meeting with the data clerks to explain the study's objectives and get their support in the patient recruitment process while patient recruitment was conducted by the researcher. The data clerks at the respective healthcare facilities have signed a confidentiality binding agreement, to keep patients' clinical records confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexures 21 & 23). On the 23rd of October 2020, the researcher sent ethical

clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), study approval granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), study approval letters from the town health office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), and approval letters from Healthcare Facility A and Healthcare Facility B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and 13), signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), and informed consent forms (refer to Annexure 30 for informed consent form for healthcare providers in English) to the Healthcare Facility A and Healthcare Facility B data clerk.

Additionally, these documents were translated into Afan Oromo (refer to Annexure 19 for the confidentiality binding agreement signed by the researcher for patients in Afan Oromo, Annexure 31 for the informed consent form for patients in Afan Oromo, and 32 information sheets for patients) to ensure clear understanding for both the data clerks and patients who were targeted for participation in this study. The purpose of sharing these documents was to ensure ethical procedure and get data clerks support in the facilitation of patient consent form signatures. Based on the approval granted by Healthcare Facility A and Healthcare Facility B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B), on the 27th of October 2020, data clerks from the respective healthcare facilities emailed the researcher a list of patients started on same-day ART and currently in HIV care, including their phone numbers extracted from the smart care database. To ensure privacy, personal identities were removed from the list, and data clerks assigned a code to each list.

From the 27th of October 2020 until the 28th of October 2020, based on the proposed sample, the researcher recruited two (2) patients from Healthcare Facility A and one (1) patient from Healthcare Facility B, for a total of three (3) patients for pre-testing. During patients' recruitment through cell phones, the researcher explained the study's objectives, confirmed privacy that the researcher had signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and informed the patients that they could access the

consent form in the ART clinic from data clerks. Patients who agreed to participate in pre-testing were invited to voluntarily participate and sign the informed consent form in the ART clinic.

The researcher also informed the participants of their right to withdraw from pre-testing at any time, despite signing the informed consent form. No threat of a penalty was mentioned to the participants (refer to Annexure 30 for an informed consent form for healthcare providers in English). Additionally, informed consent to record an in-depth cell phone interview was requested from the participants (refer to Annexure 30 for the informed consent form for healthcare providers in English). On the monthly follow-up appointment dates for HIV care, patients signed the informed consent forms in the ART clinic. Data clerks collected signed informed consent forms and sent them to the researcher via email. The researcher downloaded an informed consent signed by each participant, which was received via email from the respective ART clinic data clerks prior to the cell phone in-depth interview.

Participants were interviewed on the basis of the signed consent form, and different interview dates were set for each healthcare facility's participant. The researcher conducted individual in-depth cell phone interviews for participants from Healthcare Facility A, from the 15th of November 2020 until the 21st of November 2020, and for Healthcare Facility B on the 28th of November 2020. An interview guide (refer to Annexure 34 for an interview guide for ART patients) was used as a data collection instrument, which contains demographic information. The grand tour question, “How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?” was followed by probing questions.

Patients were interviewed on factors that led to lost to follow-up from HIV care, the challenges and benefits encountered with the initiation of same-day ART, and their suggestions regarding ART, how to enhance retention in HIV care, and viral suppression. The demographic information was collected through cell phones at the start of the data collection, prior to the commencement of the recording of pre-testing interviews. An interview with each participant was automatically recorded with the use of a cell phone, and field notes were used to complement the interviews. Field notes were taken as back-up data during individual in-depth cell phone interviews. Privacy was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to

Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), pre-testing was conducted by the researcher via cell phone, and numbers were allocated to the records.

Interviews took 20-30 minutes, as there was no new information elicited from the participants due to data saturation. Pre-testing was conducted on a total of three patients from both healthcare facilities. The researcher then expressed his gratitude and thanked the participants for their active involvement, effort, and time. The cell phone records, signed consent forms, signed information sheet, and completed interview guides were kept in a private, locked cabinet for safety and privacy. There was no modification to the interview guide after pre-testing.

4.7.2.7 Data collection

4.7.2.7.1 Data collection method and approach

Data collection is the process of gathering relevant information about selected research variables or units of analysis in an organised and systematic manner (Bairagi & Munot 2019:131). According to Bairagi and Munot (2019:36), the method employed by researchers for collecting primary data depends on the type of problem as well as the understanding of the individuals from whom the data is to be collected. In this study, data collection took place during the global COVID-19 pandemic, which was on level 4. In order to mitigate the risks associated with the COVID-19 pandemic, the researcher used individual, in-depth cell phone interviews as the method for data collection during the qualitative phase.

Furthermore, to minimise the risk of the COVID-19 pandemic, recruitment was facilitated through the healthcare facilities' human resource units' heads for the healthcare provider's team and data clerks for patients. Participants for this phase were recruited from two healthcare facilities, which were the setting of this study, and were purposefully selected from Adama and Bishoftu towns. For the purpose of ethical consideration, they were named "Healthcare Facility 1" and "Healthcare Facility 2." For the qualitative phase of data collection, an interview guide was used, which was the same for both healthcare facilities but differed in relation to patients (refer to Annexure 34 for an interview guide for ART patients) and healthcare providers (refer to Annexure 35 for an interview guide for

the ART clinic healthcare provider team).

However, data was collected at different times from healthcare providers, including physicians, nurses, case managers, and adherence supporters working in the ART clinics of the selected healthcare facilities. Similarly, data was collected from patients who were started on same-day ART from the 1st of October 2017 until the 30th of October 2019 and are currently in chronic HIV care. Data collection for both healthcare facilities followed the same procedure; however, it was conducted on different dates. Prior to data collection, ethical clearance was obtained from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), and a letter of support was granted from the UNISA Ethiopia Regional Learning Centre (refer to Annexure 2 for UNISA Regional Learning Centre support letter).

Subsequently, approval for the study was granted by the Oromia Regional Health Bureau on the 26th of June 2020 (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), Healthcare Facility 1 on the 21st of July 2020 (refer to Annexure 16 for granted permission to conduct study from Health Facility 1), and Healthcare Facility 2 on the 27th of July 2020 (refer to Annexure 17 for granted permission to conduct study from Health Facility 2). The ethical clearance received from UNISA and the letter of support received from UNISA Ethiopia Regional Learning Centre were used to request approval to conduct the study from the Oromia Regional Health Bureau. Data was collected in the form of an in-depth cell phone interview, and field notes were taken as back-up data. The details of each healthcare facility participant's recruitment and data collection were discussed below.

4.7.2.7.2 Data collection from Healthcare Facility 1

4.7.2.7.2.1 Data collection from healthcare providers

Prior to data collection, approvals for conducting the study were received from the Oromia Regional Health Bureau and Healthcare Facility 1 (refer to Annexure 5 for permission granted to a conduct study from ORHB in Afan Oromo and Annexure 16 for granted permission to a conduct study from Health Facility 1). Data was collected from the healthcare provider's team, being physicians, nurses, case managers, and adherence supporters who were working in the ART clinic of Healthcare Facility 1. Data collection

was conducted during the COVID-19 pandemic on level 4. Based on UNISA COVID-19 pandemic guidelines (refer to Annexure 3 for UNISA COVID-19 statement guidelines), data collection was conducted remotely in the form of an individual in-depth cell phone interview. To avoid the risk of getting COVID-19 and due to restricted movement, the study participants recruitment was facilitated through the healthcare facility's human resources unit.

The head of the human resources unit at the healthcare facility's 1 received a copy of the approval letter to conduct the study, granted to the researcher by the healthcare facility's 1 ethical review board (refer to Annexure 16 for granted permission to conduct a study from Health Facility 1). This was done to secure their support for the researcher's access to the information of healthcare providers working in the ART clinic of Healthcare Facility 1. Following the healthcare facility's 1 ethical review board communication to the head of the human resources unit, the researcher conducted a face-to-face meeting with the head of the human resources unit, explained the study's objectives, and obtained their assistance in the healthcare providers' recruitment process. In this regard, the human resources unit head of Healthcare Facility 1 has signed a confidentiality binding agreement to keep healthcare providers' information confidential when sharing their information with the researcher (refer to Annexure 24). After face-to-face communication with the Healthcare Facility 1 human resources unit head, on the 2nd of April 2021, the researcher emailed the ethical clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), approvals to conduct the study from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), Healthcare Facility 1 (refer to Annexure 16 for granted permission to conduct study from Health Facility 1) and signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English) to the head of the human resources unit.

The purpose was to obtain the email addresses and phone numbers of healthcare providers working in the ART clinic from the healthcare facility. The email addresses and phone numbers of healthcare providers were received from the head of the human resources unit at Healthcare Facility 1, following verbal consent from each participant to share their information with the healthcare facility's human resources unit head, who then provided the information to the researcher. On the 17th of April 2021, during a routine site visit for work-related purposes, the researcher received the list of healthcare providers

along with their information from the human resource units at each healthcare facility.

After receiving the list of healthcare providers from Healthcare Facility 1, the researcher purposefully recruited the study participants from the list of physicians, nurses, case managers, and adherence supporters for individual, in-depth cell phone interviews. This recruitment process took place from the 18th of April 2021 until the 24th of April 2021. During the recruitment, the researcher explained the purpose of the study to each participant via cell phone and requested their voluntary participation in the study. For those who agreed to participate in this study, the researcher sent an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), an informed consent form (refer to Annexure 30 for informed consent form for healthcare providers in English), a signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and an interview guide (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team) through email.

The participants were also orientated on the information sheet and the informed consent forms and requested to sign the informed consent. Additionally, informed consent to record an in-depth cell phone interview was requested from participants (refer to Annexure 30 for informed consent form for healthcare providers in English). The request to record was indicated in the informed consent form. They were assured that they have the right to withdraw from participation in the study if they wish, even if they have signed an informed consent form without any penalty. A signed informed consent form was received from each healthcare provider through email. The researcher downloaded an informed consent form signed by each participant, which was shared through email before the date of the in-depth cell phone interview.

The researcher also informed them that they had the right to withdraw from the study at any time, even if they had signed informed consent without penalty. The researcher scheduled the interview based on their indicated date of availability, and different interview dates were set for each healthcare facility's participants. The participants were interviewed from the 30th April 2021 until the 9th June 2021. An interview guide (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team), which contained study participants' demographic information, grand tour questions, and follow-up probing questions, was used. The grand tour question, "How was same-day

antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?" was followed by probing questions.

The healthcare providers team was interviewed on factors that have led to the loss of follow-up from HIV care for patients started on same-day ART; benefits and challenges encountered with the initiation of same-day ART; how patients initiated on same-day ART who were lost from HIV care will be traced; and strategies for same-day ART initiation, retention in HIV care, and viral suppression. The demographic information was collected through cell phones at the start of the data collection, prior to the commencement of the recording of cell phone interviews. An interview with each participant was automatically recorded by means of a cell phone, and field notes were used to capture information during the interview.

Field notes were taken as back-up data during individual in-depth cell phone interviews. Privacy was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), data collection was conducted by the researcher via cell phone interview, and codes were allocated during the recording of interviews. In this regard, participant's records were labelled "Ph1-Ph3" followed by the participant's number in order to differentiate participants. Similarly, nurses (N1-N5), case managers (CM1-CM2), and adherence supporters (AS1-AS3). Individual in-depth cell phone interviews took 15-25 minutes as there was no new information coming from the participants, thus data saturation. The researcher then thanked the participants for their active involvement, effort, and time. The cell phone records, signed consent forms, signed information sheets, and completed interview guides of the study participants were kept in a private, locked cabinet for safety, privacy, and data analysis purposes.

4.7.2.7.2.2 Data collection from patients

Qualitative phase data collection from patients started on same-day ART was conducted during the COVID-19 pandemic, which was on level 4. To avoid the risk of the COVID-19 pandemic, patients' recruitment was facilitated through the data clerk at Healthcare Facility 1. Data clerks were selected to facilitate patients' recruitment since they were the primary contact for patients receiving ART services and had access to the smart care database, which contained patients' information. The data clerk working at the healthcare

facility's 1 ART clinic received written notice, along with a copy of the approval letter to undertake the study, through the healthcare facility's ethical review board. This was done to secure their support for the researcher's access to the smart care database.

Following the communication from the Ethical Review Board to the data clerk, the researcher conducted a face-to-face meeting with the data clerks to explain the study's objectives and get their support in the patient recruitment process while patient recruitment was conducted by the researcher. The data clerk at Healthcare Facility 1 has also signed a confidentiality binding agreement to keep patients' information confidential when sharing it with the researcher (refer to Annexure 25). On the 7th of December 2020, the researcher sent ethical clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), study approval granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), study approval letters from the town health office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), and approval letters from Healthcare Facility A and Healthcare Facility B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B), signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), and informed consent forms (refer to Annexure 30 for informed consent form for healthcare providers in English) to each healthcare facility data clerk.

Additionally, these documents were translated into Afan Oromo (refer to Annexures 19, 31 & 32) to ensure clear understanding for both the data clerks and patients enrolled in this study. The purpose of sharing these documents was to ensure ethical procedure and obtain the data clerk’s support in the facilitation of patient consent form signatures. On the 13th of December 2020, data clerks from Healthcare Facility 1 emailed the researcher a list of patients started on same-day ART and currently in HIV care, including their phone numbers extracted from the smart care database. Privacy was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), data collection was conducted by the researcher via cell phone interview, and codes were allocated during recording. In this context, patient records were assigned

codes as "P1-P5," wherein "P" denotes patient, followed by a number indicating the participant's sequence number for differentiation.

To ensure anonymity, personal identities were removed from the list, and data clerks assigned a code to each list. From the 16th of December 2020 until the 20th of December 2020, based on the proposed sample, the researcher recruited five (5) patients from Healthcare Facility 1 for individual in-depth cell phone interviews via cell phone. During patients' recruitment through cell phones, the researcher explained the study's objectives, confirmed privacy that the researcher had signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and informed the patients that they could access the consent form in the ART clinic from data clerks. Patients who agreed were invited to voluntarily participate and sign the informed consent form in the ART clinic.

Additionally, informed consent to record an in-depth cell phone interview was requested from the participants (refer to Annexure 30 for the informed consent form for healthcare providers in English). On the monthly follow-up appointment dates for HIV care, patients signed the informed consent forms in the ART clinic. Data clerks collected signed informed consent forms and sent them to the researcher via email. The researcher downloaded an informed consent signed by each participant, which was received via email from the data clerks prior to the cell phone in-depth interview. Participants were interviewed based on the signed consent form, and different interview dates were set for each participant. The researcher conducted individual, in-depth cell phone interviews with patients from the 29th December 2020 until the 9th of January 2021.

An interview guide (refer to Annexure 34 for an interview guide for ART patients) was used as a data collection instrument, which contains demographic information and the grand tour question, "How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?" followed by probing questions. Patients were interviewed on factors that led to lost to follow-up from HIV care, the challenges and benefits encountered with the initiation of same-day ART, and their suggestions regarding ART, enhancement of retention in HIV care, and viral suppression. The demographic information was collected through cell phones at the start of the data collection, prior to the commencement of the recording of the interviews.

An interview with each participant was digitally recorded by means of a cell phone, and field notes were used to capture information during the interview. The request to record was indicated in the informed consent form. The researcher also informed them of their right to withdraw from the study at any time if they wish, without any penalty, and despite that, they signed the informed consent form. Field notes were taken as back-up data during individual in-depth cell phone interviews. Confidentiality was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English). Privacy was maintained by ensuring anonymous participation, with individual interviews conducted by the researcher via cell phone and codes allocated to the records.

Interviews took 15-25 minutes, as there was no new information elicited from the participants due to data saturation. Data was collected from a total of five patients from Healthcare Facility 1. The researcher then expressed his gratitude to the participants and thanked them for their active involvement, effort, and time. The cell phone records, signed consent forms, signed information sheets, and completed interview guides of the study participants were kept in a private, locked cabinet for safety, privacy, and data analysis purposes. Number of participants for qualitative data collection from Healthcare Facility 1 (refer to Table 4.1).

Table 4.1: Number of participants for qualitative data collection from Healthcare Facility 1

Dates	Type of participants	Number of participants
30 April 2021 to 09 June 2021	Physicians	3
	Nurses	5
	Case managers	2
	Adherence supporters	3
29 December 2020 to 09 January 2021	ART patients	5
Total		**18**

4.7.2.7.3 Data collection from Healthcare Facility 2

The researcher followed the same procedure of data collection used for data collection at Healthcare Facility 1, which was also applied at Healthcare Facility 2. The difference in that regard was the date of data collection. The specific data collection details from healthcare providers and patients at Healthcare Facility 2 are presented below.

4.7.2.7.3.1 Data collection from healthcare providers

Prior to data collection, approvals for conducting the study were received from the Oromia Regional Health Bureau and Healthcare Facility 2 (refer to Annexure 5 for permission granted to conduct a study from ORHB in Afan Oromo and Annexure 17 for granted permission to conduct a study from Health Facility 2). Data was gathered from the healthcare provider's team, which included physicians, nurses, case managers, and adherence supporters who were working in the ART clinic of Healthcare Facility 2. Data collection was conducted during the COVID-19 pandemic on level 4. Based on UNISA COVID-19 pandemic guidelines (refer to Annexure 3 for UNISA COVID-19 statement guidelines), data collection was conducted remotely in the form of an individual in-depth cell phone interview. To avoid the risk of getting COVID-19 and restricted movement, the study participants recruitment was facilitated through the healthcare facility's human resources unit.

The head of the human resources unit at the healthcare facility's 2 received a copy of the approval letter to conduct the study, granted to the researcher by the healthcare facility's 2 ethical review board (refer to Annexure 17 for granted permission to conduct a study from Health Facility 2). This was done to secure their support for the researcher's access to the information of healthcare providers working in the ART clinic of Healthcare Facility 2. Following the Healthcare Facility's 2 ethical review board communications to the head of the human resources unit, the researcher conducted a face-to-face meeting with the head of the human resources unit, explained the study's objectives, and obtained their assistance in the healthcare providers' recruitment process. After the initial communication with the Healthcare Facility 2 human resources unit head, on the 19th of April 2021, the researcher emailed the ethical clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), approvals to conduct the study from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), and Healthcare Facility 2 (refer to Annexure 17 for granted permission to conduct study from Health Facility 2) to the head of the human resources unit.

The purpose was to obtain the email addresses and phone numbers of healthcare providers working in the ART clinic from the healthcare facility. The email addresses and

phone numbers of healthcare providers were received from the head of the human resources unit at Healthcare Facility 2, following verbal consent from each participant to share their information with the researcher. In this regard, the human resources unit head of Healthcare Facility 2 has signed a confidentiality binding agreement to keep healthcare providers' information confidential when sharing their information with the researcher (refer to Annexure 26). On the 20th of April 2021, during a routine site visit for work-related purposes, the researcher received the list of healthcare providers along with their information from the human resource units at each healthcare facility. After receiving the list of healthcare providers from Healthcare Facility 2, the researcher purposefully recruited the study participants from the list of physicians, nurses, case managers, and adherence supporters for individual, in-depth cell phone interviews.

This recruitment process took place from the 22nd of January 2022, until the 3rd February 2022. During the recruitment, the researcher explained the purpose of the study to each participant via cell phone and requested their voluntary participation in the study. For those who agreed to participate in this study, the researcher sent an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), an informed consent form (refer to Annexure 30 for informed consent form for healthcare providers in English), a signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and an interview guide (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team) through email. The participants were also orientated on the information sheet and the informed consent forms and requested to sign the informed consent. Additionally, informed consent to record an in-depth cell phone interview was requested from participants (refer to Annexure 30 for the informed consent form for healthcare providers in English).

The request to record was indicated in the informed consent form. They were assured that they have the right to withdraw from participation in the study if they wish, even if they have signed an informed consent form without any penalty. A signed informed consent form was received from each healthcare provider through email. The researcher downloaded an informed consent form signed by each participant, which was shared through email before the date of the in-depth cell phone interview. The researcher also informed them that they had the right to withdraw from the study at any time, even if they had signed informed consent without penalty. The researcher scheduled the interview

based on their indicated date of availability, and different interview dates were set for each healthcare facility's participants.

The participants were interviewed from the 10th February 2022 until the 22nd March 2022. An interview guide (refer to Annexure 35 for an interview guide for the ART clinic healthcare provider team), which contained study participants' demographic information, grand tour questions, and follow-up probing questions, was used. The grand tour question, "How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?" was followed by probing questions. The healthcare providers team was interviewed on factors that have led to the loss of follow-up from HIV care for patients started on same-day ART; benefits and challenges encountered with the initiation of same-day ART; how patients initiated on same-day ART who were lost from HIV care will be traced; and strategies for same-day ART initiation, retention in HIV care, and viral suppression.

The demographic information was collected through cell phones at the start of the data collection, prior to the commencement of the recording of cell phone interviews. An interview with each participant was automatically recorded by a cell phone, and field notes were used to capture information during the interview. Field notes were taken as back-up data during individual in-depth cell phone interviews. Confidentiality was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for the confidentiality binding agreement signed by the researcher for healthcare providers in English). Privacy was maintained by ensuring anonymous participation, with individual interviews conducted by the researcher via cell phone, and records codes were allocated to the records. In this regard, participant's records were labelled "Ph4" followed by the participant's number in order to differentiate participants. Similarly, nurses (N6-N7), case managers (CM3-CM4), and adherence supporters (AS4-AS5).

Individual in-depth cell phone interviews took 20-42 minutes, as there was no new information elicited from the participants due to data saturation. The researcher then expressed his gratitude to the participants, and thanked them for their active participation, time, and effort. The cell phone records, signed consent forms, signed information sheets, and completed interview guides of the study participants were kept in a private, locked cabinet for safety, privacy, and data analysis purposes.

4.7.2.7.3.2 Data collection from patients

Qualitative phase data collection from patients started on same-day ART was conducted during the COVID-19 pandemic, which was on level 4. To avoid the risk of the COVID-19 pandemic, patients' recruitment was facilitated through the data clerk at Healthcare Facility 2. Data clerks were selected to facilitate patients' recruitment since they were the primary contact for patients receiving ART services and had access to the smart care database, which contained patients' information. The data clerk working at the healthcare facility's 2 ART clinic received written notice, along with a copy of the approval letter for conducting the study, through the healthcare facility's ethical review board. This was done to secure their support for the researcher's access to the smart care database.

Following communication from the ethical review board to the data clerk, the researcher conducted a face-to-face meeting with the data clerks to explain the study's objectives and get their support in the patient recruitment process while patient recruitment was conducted by the researcher. The data clerk at Healthcare Facility 2 has also signed a confidentiality binding agreement to keep patients' information confidential when sharing it with the researcher (refer to Annexure 27). On the 7th of December 2020, the researcher sent ethical clearance received from UNISA (refer to Annexure 1 for UNISA ethical clearance certificate), study approval granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), study approval letters from the town health office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo), and approval letters from Healthcare Facility A and Healthcare Facility B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B), signed confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), an information sheet (refer to Annexure 33 for information sheet in for healthcare providers in English), and informed consent forms (refer to Annexure 30 for informed consent form for healthcare providers in English) to each healthcare facility data clerk.

Additionally, these documents were translated into Afan Oromo (refer to Annexures 19, 31 & 32) to ensure clear understanding for both the data clerks and patients enrolled in this study. The purpose of sharing these documents was to ensure ethical procedure and

to obtain the data clerk's support in the facilitation of patient consent form signatures. On the 15th of December 2020, data clerks from Healthcare Facility 2 emailed the researcher a list of patients started on same-day ART and currently in HIV care, including their phone numbers extracted from the smart care database. Confidentiality was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English). Privacy was maintained by ensuring anonymous participation, with individual interviews conducted by the researcher via cell phone, and records codes were allocated to the records. In this context, patient records were assigned codes as "P6-P10," wherein "P" denotes patient, followed by a number indicating the participant's sequence number for differentiation.

To ensure anonymity, personal identities were removed from the list, and data clerks assigned a code to each list. On the 17th of December 2020, based on the proposed sample, the researcher recruited five (5) patients from Healthcare Facility 2 for individual in-depth cell phone interviews via cell phone. During patients' recruitment through cell phones, the researcher explained the study's objectives, confirmed privacy that the researcher had signed a confidentiality binding agreement (refer to Annexure 18 for confidentiality binding agreement signed by the researcher for healthcare providers in English), and informed the patients that they could access the consent form in the ART clinic from data clerks. Patients who agreed were invited to voluntarily participate and sign the informed consent form in the ART clinic.

The researcher also informed them that they had the right to withdraw from the study at any time, even if they had signed informed consent without penalty (refer to Annexure 30 for the informed consent form for healthcare providers in English). Additionally, informed consent to record an in-depth cell phone interview was requested from the participants (refer to Annexure 30 for the informed consent form for healthcare providers in English). On the monthly follow-up appointment dates for HIV care, patients signed the informed consent forms in the ART clinic. Data clerks collected signed informed consent forms and sent them to the researcher via email. The researcher downloaded an informed consent signed by each participant, which was received via email from the data clerks prior to the cell phone in-depth interview.

Participants were interviewed based on the signed consent form, and different interview

dates were set for each participant. The researcher conducted individual, in-depth cell phone interviews with patients from the 10th January 2021 until the 6th of February 2021. An interview guide (refer to Annexure 34 for an interview guide for ART patients) was used as a data collection instrument, which contains demographic information and the grand tour question: “How was same-day antiretroviral therapy initiation associated with viral suppression and retention in HIV care in Ethiopia?” followed by probing questions. Patients were interviewed on factors that led to lost to follow-up from HIV care, the challenges and benefits encountered with the initiation of same-day ART, and their suggestions regarding ART, how to enhance retention in HIV care, and viral suppression.

The demographic information was collected through cell phones at the start of the data collection, prior to the commencement of the recording of the interviews. An interview with each participant was automatically recorded by a cell phone, and field notes were used to capture information during the interview. The request to record was indicated in the informed consent form (refer to Annexure 31 for the informed consent form for patients in Afan Oromo). The researcher also informed the participants that they had the right to withdraw from the study at any time, even if they had signed informed consent without penalty. Field notes were taken as back-up data during individual in-depth cell phone interviews. Confidentiality was maintained by ensuring that the researcher signed a confidentiality binding agreement (refer to Annexure 18 for the confidentiality binding agreement signed by the researcher for healthcare providers in English). Privacy was maintained by ensuring anonymous participation, with individual interviews conducted by the researcher via cell phone and codes allocated to the records.

Interviews took 15-25 minutes as there was no new information coming from the participants, thus data saturation. Data was collected from a total of five patients from Healthcare Facility 2. The researcher then thanked the participants for their active participation, time, and effort. The cell phone records, signed consent forms, signed information sheets, and completed interview guides of the study participants were kept in a private, locked cabinet for safety and privacy and, furthermore, for data analysis purposes. Table 4.2 below depicts the number of participants who took part in the qualitative data collection from Healthcare Facility 2.

Table 4.2: Number of participants for qualitative data collection from Healthcare Facility 2

Dates	Type of participants	Number of participants
10 February 2022 to 22 March 2022	Physician	1
	Nurses	2
	Case managers	2
	Adherence supporters	2
10 January 2021 to 06 February 2021	ART patients	5
Total		**12**

Table 4.3 below is a depiction of a summary of participants who took part in the qualitative data collection from healthcare facilities 1 and 2.

Table 4.3: Summary of number of participants of data collected from Health facilities 1 and 2

Health care facility	Healthcare providers interviewed	ART patients interviewed	Total participants interviewed
Healthcare Facility 1	13	5	18
Healthcare Facility 2	7	5	12
Total	**20**	**10**	**30**

The total number of participants from both healthcare facilities was 30.

4.7.2.8 Data management and analysis

The analysis of qualitative research is non-numerical and usually presented through written material, videotapes, audiotapes, and photographs, which also involves an examination of text rather than numbers (Brink et al 2018:180). Qualitative studies need to specify the steps in analysing the different forms of qualitative data for the purpose of making sense of text and image data (Creswell & Creswell 2018:306). In this study, a total of thirty (30) participants individual in-depth cell phone interviews were analysed for patients and healthcare providers' teams from the two healthcare facilities.

Qualitative data analysis was conducted using data transcribed from in-depth cell phone interviews and field notes. Demographic data collected prior to the in-depth cell phone interviews was used in data analysis in terms of age, sex, religion, and place of birth, which enables the researcher and readers to have background information about the participants of the study. The researcher utilised Tesch's inductive, descriptive open-coding technique, which has eight steps (Creswell 2014:248). Thematic analysis was

applied first by repeatedly reading the field notes and listening to the in-depth cell phone interview record to obtain an overall sense of the key issues for participants. The researcher transcribed the data verbatim from the cell phone in-depth interview record used during the interviews and field notes.

The transcribed in-depth interview record was also sent to an independent co-coder, who is an educator and researcher with extensive experience in qualitative studies and in possession of a doctorate degree (refer to Annexure 29 for a signed confidentiality binding agreement by the co-coder and Annexure 38 for proof of coding qualitative data). The co-coder also confirmed that data saturation had occurred because four or more themes and subthemes were present in all categories of participants interviewed.

The data analysis procedures and eight steps of Tesch's inductive, descriptive, open-coding technique used were listed below:
Step 1 – Reading and re-reading all the transcripts;
Step 2 – Reducing the transcribed data;
Step 3 – Posing questions about the meaning of the collected data;
Step 4 – Abbreviating and converting topics to codes;
Step 5 – Developing themes and sub-themes;
Step 6 – Comparing topics, codes, and themes for duplication; and
Step 7 – Initial grouping of all themes and sub-themes.

The data belonging to each theme were assembled in one column, and preliminary analysis was performed, which was followed by a meeting between the researcher and co-coder to reach consensus on themes and sub-themes that each one had come up with independently. After qualitative data analysis and interpretation, the findings were used to refine the data collection checklist for the quantitative phase. The details and application of coding and the steps followed were discussed in Chapter 5, which is Phase 1 qualitative data analysis and presentation.

4.7.2.9 Trustworthiness in qualitative approach

In a qualitative study, data quality was ensured by trustworthiness through different methods. Trustworthiness is examined as a way of ensuring data quality or rigour in qualitative research (Brink et al 2018:158). According to Brink et al (2018:158), rigour is

the quality or state of being very exact, careful, or with strict precision, or the quality of being thorough and accurate. The evaluation of a qualitative study's rigour is premised on the emerging theory's logic and its clarification of the phenomenon under investigation (Polit & Beck 2017:557). According to Brink et al (2018:157), trustworthiness was used in terms of validity and reliability for qualitative research. The rigour of the research is assessed through the criteria of credibility, transferability, dependability, and conformability, as discussed below.

4.7.2.9.1 Credibility

Credibility is the extent to which the qualitative findings are perceived as accurately conveying the study participants' experiences (Clark & Ivankova 2016:163). Furthermore, credibility relates to confidence in the truth of the data, as reflected in the effective interpretation of the investigation. To ensure research credibility, the data collection tools were pre-tested at two sites, and field notes were taken during in-depth cell phone interviews alongside thorough management of cell phone recordings. Furthermore, credibility was ensured through data integrity, which was maintained by recording interviews via cell phone to preserve originality and verifiability. Prolonged engagement and member checks allowed informants to verify or dispute researchers' interpretations of their viewpoints during data gathering.

4.7.2.9.2 Transferability

Transferability is the possible applicability of a mixed methods study's conclusions and findings to other people and contexts with similar experiences prevailing in the original research context (Clark & Ivankova 2016:163). Similarly, Willig and Rogers (2017:35) also described transferability as the provision of sufficient detail to enable readers' judgement concerning the findings' applicability to other settings. This study also sought to generalise the findings to another setting. This study was carried out in healthcare facilities providing ART services at the health center and hospital levels. By clearly describing the investigation and giving a thorough audit trail (refer to Annexure 37 for the audit trail report), the researcher was able to guarantee the study's transferability and make it possible for other researchers to conduct the same inquiry in a similar environment.

4.7.2.9.3 Dependability

Dependability is the provision of evidence or findings such that they would be the same in the event of their repetition with different participants experiencing similar problems in other contexts (Brink et al 2018:159). For Polit and Beck (2017: 787), dependability relates to the stability or consistency of data over time and under certain conditions. In this study, all the aspects and processes of the study were fully described by means of an audit trail. These included the choice of methodology, the attributes of the sample, the data gathering and analysis processes and procedures, as well as the decisions that informed these choices.

4.7.2.9.4 Confirmability

Grove and Gray (2019:267) defined confirmability as the degree to which external professionals, scholars, and researchers view a qualitative study's methods, findings, and conclusions, as logically coherent. According to Polit and Beck (2017:788), confirmability is concerned with establishing the agreeability of the participants' information with the findings, and the entire research process is not an invention of the researcher. Therefore, confirmability is basically a reflection of the voices of the participants and not the prejudices or biases of the researcher. Additionally, the researcher involved the services of a co-coder and an experienced research methodology professional to check or corroborate the findings and methods used to obtain these findings (refer to item 4.6.2.8 for proof data analysis). Furthermore, the confirmability audit trail was performed in this study to determine whether the data and interpretations made by the researcher were internally coherent and represented more than figments of the imagination (refer to Annexure 37 for the audit trail report).

4.7.3 Phase 2: Quantitative phase approach

Quantitative research involves measurements of quantities of characteristics that can be used as features for the study (Bairagi & Munot 2019:8). Quantitative research methods are based on the assumption that extensive quantitative data collection with a wide range of systematic, regulated, and unified measurements and numerical expressions are important tools in the process of gaining information as research questions can be answered based on that numerical expression (Boncz 2015:25).

According to Patten and Newhart (2018:22), quantitative research results are presented as numbers, which are usually presented through statistical analysis. The objectives of this phase were the evaluation of same-day ART initiation status regarding retention of patients in HIV care and viral suppression. In the quantitative phase, the methodology covered a descriptive approach, a cross-sectional approach, and retrospective document analysis. The details of each approach addressed the population, sampling technique, sample, inclusion and exclusion criteria, development and pre-testing of the instrument, data collection, and data analysis of each phase separately.

4.7.3.1 Descriptive research design

Descriptive research focused on providing an accurate description or picture of the status or characteristics of a situation or phenomenon (Johnson & Christensen 2020:1045). Bairagi and Munot (2019:7) affirmed that descriptive research tries to represent or analyse previous and/or current facts. Furthermore, Grove and Gray (2019:310) attest that descriptive research allows for the researcher's investigation and description of a phenomenon in its natural setting. Accordingly, a descriptive approach was used to evaluate same-day ART initiation regarding retention and viral suppression of patients in HIV care at the healthcare facility level in Ethiopia.

The descriptive statistics analysis was presented in the three sections of the data collection checklist: demographics, baseline information, and same-day ART initiation-related information. The demographic category included the patient's age, sex, marital status, religion, educational level, address, availability of a phone number, and documentation of the patient's kebele and house number (refer to Annexure 36 for the Phase 2 data collection checklist). Transitioning to the baseline information section, it unveils a tapestry of elements, including the patient's history of opportunistic infections upon enrolment, their baseline body mass index, functional status, WHO staging, HIV disclosure status, as well as their CD4 performance at the point of enrolment.

4.7.3.2 Cross-sectional design

A cross-sectional study is one that produces a preview of a population at one particular point and provides researchers with data for either a retrospective or a prospective inquiry

(Martin 2018:348). The cross-sectional design allows the researcher to collect data at one point in time, and basic descriptive statistical analyses are typically used to summarise the data (Edmonds & Kennedy 2017:135). Accordingly, the researcher undertook a quantitative, cross-sectional study design in two healthcare facilities from the 22nd of May 2023 until the 5th of June 2023.

4.7.3.3 Retrospective document analysis

Retrospective document analysis is an approach or strategy in which data is acquired with respect to a presently occurring outcome that is linked retrospectively to determinants of past occurrences (Polit & Beck 2017:300). According to Pandey and Pandey (2015:346), a retrospective study investigates a phenomenon, situation, problem, or issue that has happened in the past. Retrospective studies are usually conducted either based on the available data for that period or based on the respondents' recall of the situation. Retrospective document analysis is the analysis of already-available documents and data to explore a problem according to a previously defined set of criteria (Boncz 2015:41). Furthermore, retrospective document analysis can be conducted for several purposes; it may help formulate hypotheses in the inquiry stage of the research, but it is also suitable for collecting and analysing data and reaching conclusions in the main part of the research (Boncz 2015:41). Therefore, the researcher used retrospective document analysis for the purpose of answering the research questions.

Retrospective document analysis can be applied as an independent method but may also be combined with other research methods that include experiments, questionnaires, observations, and case studies. Boncz (2015:41) stated that during retrospective document analysis, many official documents (medical charts, medical registry sheets, medical and/or care documentation, final reports, expert opinions, and statistical data of clinics, hospitals, and wards) may be used, but diaries and letters containing personal information may also be the subject of study.

In this study, two healthcare facilities from two towns were selected for retrospective document analysis. Accordingly, clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 were used. A checklist was also used as a data collection instrument to acquire data from the clinical records of patients started on ART. Data was extracted from an electronic database called smart

care database that was used to access individual details of same-day ART initiation history to answer the research questions.

4.7.3.4 Population

Brink et al (2018:116) defined the research population as the entire aggregation of the cases that are of interest to the researcher. The population for Phase 2 was all clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 in two healthcare facilities in two selected towns that were generated from the smart care database. The total clinical records generated from the two healthcare facilities were 581 (266 clinical records from Healthcare Facility 1 and 315 clinical records from Healthcare Facility 2).

4.7.3.5 Sampling technique and sample

Sampling is a crucial part of research design to ensure the representativeness of the universe under study and so that generalisations can be made about behaviour, beliefs, and attitudes (Willig & Rogers 2017:170). Thus, the researcher uses samples because they tend to provide a more accurate picture of the phenomenon being investigated (Brink et al 2018:115). According to Brink et al (2018:117), the selection of the representative sample population should be as similar to the entire population in as many ways as possible. A simple random sampling technique was implemented in the selection of the clinical records of patients who started on ART from the 1st of October 2017 until the 30th of October 2019 from selected healthcare facilities. A simple random sample is one with an equal chance (probability) of selecting each unit from the population being studied when creating the sample size (Baran 2016:111; Brink et al 2018:119).

The total number of patients who started on same-day ART in these two healthcare facilities from the 1st of October 2017 until the 30th of October 2019 was 581, which tallied with clinical records. In Healthcare Facility 1, about 266 patients were started on same-day ART. In Healthcare Facility 2, about 315 patients were started on same-day ART. This means the numbers of clinical records tallied with those of the patients. A statistician was consulted in order to assist in calculating the sample size. The Raosoft formula (Raosoft Formula online [r.f.]) was used for estimating the ideal sample size for each healthcare facility.

$$x = Z(^{c}/_{100})^{2}r(100-r)$$

$$n = {}^{N\,x}/_{((N-1)E^{2}+x)}$$

$$E = \mathrm{Sqrt}[{}^{(N-n)x}/_{n(N-1)}]$$

Where: N = population size,

r = the fraction of responses distribution,

Z (α/100) = the critical value for the confidence level α,

X = Z score value

E =margin of error

n = desired sample size

α = 0.05 is the significance level for the 95% confidence interval (CI)

Table 4.4 overleaf is a depiction of the Rao soft formula's capturing of the sample size for each healthcare facility was as shown in the formula above.

Table 4.4: Sample size calculation for quantitative approach for each selected healthcare facility

Healthcare Facility 1	**Healthcare Facility 2**
N=266 $(z\ \alpha/_{2})^{2}$ =1.96 (at confidence interval 95%) E= 5% r=50% n=158	N=315 $(z\ \alpha/_{2})^{2}$ =1.96 (at confidence interval 95%) E= 5% r=50% n=174
The total sample size from both healthcare facilities was 158+174= 332.	

Based on the Rao Soft online formula (Raosoft formula online [r.f.]), a total of 332 clinical records of patients started on same-day ART were used for the quantitative approach from both healthcare facilities.

4.7.3.6 Inclusion and exclusion criteria

Inclusion criteria refer to the attributes that are necessary for a subject to be considered eligible for inclusion in the study (Indrayan 2019:178). According to Indrayan (2019:178), exclusion criteria are the conditions whose presence will exclude an otherwise eligible subject from the study. Gray, Grove and Sutherland (2017:518) further explained that individuals with these characteristics would be excluded from a study, despite their

fulfilment of the inclusion criteria. In this study, inclusion and exclusion criteria have been illustrated as follows:

Inclusion criteria were:

- Clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 and
- Adult age groups were included (age greater than 18 years).

The exclusion criteria were:

- Clinical records of patients started on same-day ART transferred in from other healthcare facilities and
- Clinical records of patients started on same-day ART with incomplete information.

4.7.3.7 Development of data collection instrument

The data collection instrument for the quantitative phase was a checklist. According to Johnson and Christensen (2020:638), a checklist is a list of response categories that respondents check if appropriate. The data collection checklist (refer to Annexure 36 for Phase 2 data collection checklist) was developed based on the research objectives and questions. According to Creswell and Plano Clark (2018:270), in mixed methods research, researchers may decide to develop their own instrument based on the qualitative findings. In this study, the draft checklist was refined based on qualitative phase findings.

The content validity and reliability of the instrument were checked by the supervisor, statistician, and town health office-level health experts working in HIV/AIDS programmes before the main study was conducted. Furthermore, the checklist was pre-tested before the main study data collection (refer to item 4.6.3.8). The total number of questions in the checklist was 53, which were divided into the following three sections, which had closed-ended types of questions.

Section A addressed the key demographics and contact information of the patients. It included age, sex, marital status, religion, educational level, the patient's address, whether the participant has a phone number, whether the participant's kebele is documented, and whether the participant's house number is documented. This section

provides a comprehensive understanding of the patients and allows for demographic profiling, examination of potential relationships with other variables, and spatial analysis. This section consists of a total of nine questions.

Section B consisted of baseline clinical information about the patient at enrolment for same-day ART. This section of the checklist addressed important clinical and laboratory information at baseline for participants that includes patients' history of opportunistic illness, types of opportunistic infections, baseline weight and height, functional status, WHO clinical staging of HIV, patients' HIV disclosure status, patients' CD4 cell count at baseline, and the actual CD4 value at baseline. These variables provided insights into participants' health conditions, immune status, disease progression, and relevant factors that may influence ART treatment retention in care and viral suppression. This section consists of a total of nine questions.

Section C addressed same-day ART initiation status-related information, viral load results, and suppression-related data. This section includes HIV testing and diagnosis unit, ART initiation date, last follow-up date, current HIV care status, viral load measurements at six months, 12 months, and 24 months, ART regimens at initiation, dispensing dose at initiation, regimen changes and reasons, last follow-up antiretroviral (ARV) regimen and adherence, dispensing dose at last follow-up, history of receiving other drugs in addition to ART, weight and height at last follow-up, functional status at last follow-up, WH/treatment staging at last follow-up, TB screening and treatment history, opportunistic infections at last follow-up, cotrimoxazole history, patient's HIV prevention plan, and the HIV prevention plans of the patients. This section provided information on treatment progress, viral load monitoring, medication adherence, co-occurring conditions, and an HIV prevention plan for the patient and family. This section consists of 35 questions.

4.7.3.8 Pre-testing of data collection instrument

Pre-testing of research instruments is an integral part of instrument construction (Kumar 2019: 396). Among others, the purpose of a pre-test is to determine the time taken to collect data, to identify weaknesses in the data collection checklist, to correct ambiguities, and to enhance reliability. Furthermore, Polit and Beck (2017:892) explain that the sample used in pre-testing should be drawn from the same population that fulfils the eligibility

criteria. In this study, the pre-testing of the data collection checklist was undertaken at two selected healthcare facilities in Adama Town that offer same-day ART services that are similar to the study setting but operate independently from the targeted setting of this study.

Clinical records data for pre-testing were collected from the smart care database of patients who were started on ART from the 1st of October 2017 until the 30th of October 2019. The smart care database was selected for data collection to avoid the risk of getting the COVID-19 pandemic, which was on level 1, which reduced contact between medical record unit workers, data clerks extracting clinical records, and the researcher for the data collection process. Permission for conducting the pre-testing was requested from the heads of healthcare facilities A and B to access clinical records from the smart care database for pre-testing (refer to Annexure 10 for Healthcare Facility A to request permission to conduct pre-testing and Annexure 11 for Healthcare Facility B to request permission to conduct pre-testing). As data was collected from the smart care database, the approved permission to conduct the study received from healthcare facilities A and B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B) for accessing clinical records from the smart care database was used as informed consent. The clinical records for pre-testing were extracted from the smart care database by data clerks, and the data clerks at the respective healthcare facilities have signed a confidentiality binding agreement to keep patients' clinical records information confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexure 21 for the signed confidentiality binding agreement by the data clerk of Healthcare Facility A and 23 for signed a confidentiality binding agreement by data clerk of Healthcare Facility B).

The data collection checklist was pre-tested on twenty (20) clinical records from two healthcare facilities; ten (10) were from Healthcare Facility A and ten (10) were from Healthcare Facility B. Pre-testing of the data collection checklist at Healthcare Facility A was conducted on the 4th of April 2023, and at Healthcare Facility B on the 5th of April 2023. The researcher collected data for pre-testing the checklist in the ART data clinic rooms of healthcare facilities' A and B smart care databases, where social distancing was applied, sanitizer was used, and contact with people and patients' charts was reduced. The twenty (20) clinical records used during the pre-testing of the data collection checklist

were used to determine the clarity of questions, relevance of questions, order of questions, time required for data entry, and to complete the checklist. In order to maintain confidentiality and anonymity, a number was assigned to clinical records instead of a name.

For security and in preparation for modification purposes, twenty (20) pre-tested clinical records were kept and stored electronically on the researcher's personal computer. The researcher applied minor modifications to the data collection checklist after pre-testing. The focus of the modifications was on data elements related to functional status at enrolment, ARV adherence at the most recent follow-up, patients' cotrimoxazole start status, and their HIV prevention plans. The modifications to the data collection checklist were made in order to improve the quality of the data that was collected. The modifications were shared with the supervisor and the statistician for final approval in preparation for the main data collection (refer to Annexure 36 for the Phase 2 data collection checklist).

4.7.3.9 Data collection

4.7.3.9.1 Data collection method and approach

Data collection is the process of systematically acquiring relevant abstract and/or empirical information in order to address the core or pertinent issues and aspects of the study (Gray et al 2017:286). According to Creswell and Creswell (2018:242), data collection is a systematic gathering of information to address the research purpose or the specific objectives or questions in the study. The quantitative phase data was collected by the researcher from the clinical records of patients started on same-day ART between the 1st of October 2017 and the 30th of October 2019 from the smart care database of Healthcare Facility 1 and Healthcare Facility 2 ART clinics. The clinical records for quantitative data collection were extracted from the smart care database by data clerks of respective healthcare facilities, and they have signed a confidentiality binding agreement to keep patients' clinical records information confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexures 25 & 27). Data collection for both healthcare facilities followed the same procedure; however, it was conducted on different dates. Quantitative data collection from each selected health care facility was discussed as follows:

4.7.3.9.2 Data collection from Healthcare Facility 1

Data was collected from the smart care database. The smart care database is an electronic database in ART clinics that captures all information about HIV chronic care data. The approval to conduct the study received from Healthcare Facility 1 (refer to Annexure 16 for granted permission to conduct the study from Health Facility 1) was used as informed consent and for entry into the healthcare facility. Data was collected during the COVID-19 level 1 pandemic from the 22nd of May 2023 until the 27th of May 2023 from the smart care database using a data collection checklist (refer to Annexure 36 for Phase 2 data collection checklist).

The smart care database was selected for data collection to avoid the risk of getting the COVID-19 pandemic, which was on level 1. It reduced contact between medical record unit workers, data clerks who extract clinical records from the medical record unit, and the researcher for the data acquisition process. Additionally, the researcher used social distancing, a mask, and sanitizer during data collection to minimise the risk of COVID-19. Clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 were extracted from the smart care database by the data clerk. The data clerk at Healthcare Facility 1 has signed a confidentiality binding agreement to keep patients' clinical records information confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexure 25).

The researcher was assigned a number to each extracted clinical record from 1 to 266 of the randomly selected 158 clinical records using a computer system. Data was collected by the researcher from 158 clinical records, each with its own checklist, in the Healthcare Facility 1 ART clinic. The time it took to complete one checklist was 15-20 minutes. A total of 158 completed checklists were stored in a locked and secured place for confidentiality and in preparation for data analysis.

4.7.3.9.3 Data collection from Healthcare Facility 2

Approval for conducting the study received from Healthcare Facility 2 (refer to Annexure 17 for granted permission to conduct the study from Health Facility 2) was used as informed consent and for entry into the healthcare facility. Data collection was conducted during the COVID-19 level 1 pandemic. Data was collected from the 29th of May 2023

until the 5th of June 2023 from the smart care database using a data collection checklist (refer to Annexure 36 for Phase 2 data collection checklist). The smart care database was selected for data collection to avoid the risk of getting the COVID-19 pandemic, which was on level 1. It reduced contact between medical record unit workers, data clerks who extract clinical records from the medical record unit, and the researcher for the data collection process.

Additionally, the researcher used social distancing, a mask, and sanitizer during data collection to minimise the risk of COVID-19. Clinical records of patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 were extracted from the smart care database by the data clerk. The data clerk at Healthcare Facility 2 has signed a confidentiality binding agreement to keep patients' clinical records information confidential when sharing clinical records extracted from the smart care database with the researcher (refer to Annexure 27). The researcher assigned each extracted clinical record from 1 to 315 of the randomly selected 174 clinical records using a computer system. Data was collected by the researcher from 174 clinical records, each with its own checklist, in the Healthcare Facility 2 ART clinic. The time it took to complete one checklist was 15-20 minutes. A total of 174 completed checklists were stored in a locked and secured place for confidentiality and in preparation for data analysis. For each healthcare facility, data was collected on different dates and times (refer to Table 4.5).

Table 4.5: Summary of quantitative data collection of healthcare facilities

Health care facilities	Dates of data collection	Number of completed checklists
Healthcare Facility 1	22 May 2023 to 27 May 2023	158
Healthcare Facility 2	29 May 2023 to 05 June 2023	174
Total		**332**

A total of 332 checklists were used for quantitative data analysis from both healthcare facilities.

4.7.3.10 Data management and analysis

Quantitative data analysis is defined as the process of utilising a variety of statistical procedures to analyse numerical data, which is usually conducted in steps: first the descriptive analysis of the individual variables is conducted, and then inferential statistics are used to analyse the associations between variables (Faulkner & Faulkner 2018:150). Brink et al (2018: 165) also described data analysis as the methodical organisation and

processing of data to convert it to cogent findings. Data analysis was conducted during the COVID-19 pandemic level 1 restrictions. Additionally, data analysis was conducted with the guidance of the statistician using the Statistical Package for the Social Sciences (SPSS) version 28 (refer to Annexure 28 for a signed confidentiality binding agreement by the statistician and Annexure 39 for proof of quantitative data analysis certificate).

The researcher used 332 clinical records of collected data, which were then entered into SPSS version 28. Subsequently, the data was thoroughly cleaned and prepared for analysis. To ensure precise and reliable data analysis, the researcher participated in face-to-face discussions and virtual team meetings with a statistician. The SPSS data was shared with the statistician via email, and collaboratively, in-person data analysis sessions were conducted under the expert guidance of the statistician. To further enhance analytical capabilities, the researcher proactively participated in a recent virtual quantitative data analysis training offered by UNISA on the 6th of June 2023.

Furthermore, on the 13th of July 2023, in Addis Ababa, there was participation in a face-to-face training session and consultation with a statistician from the University of South Africa. The training and consultation, along with the valuable assistance from the statistician, enhanced the researcher's expertise throughout the data analysis procedure. The researcher used descriptive and inferential statistics with the Chi-square test. Descriptive statistics are measurements or numbers used to summarise or describe data sets (McNabb 2021:78). According to Martin (2018:753), descriptive statistics included frequencies, measures of dispersal (standard deviation), measures of central tendency (means, modes, medians), standard deviations, cross tabulations, and standardised scores.

The researcher used frequencies and cross tabulations in descriptive data analysis, which focused on several key factors, including age, sex, marital status, WHO staging status, adherence, opportunistic infections, current care status, retention, viral load performance, suppression, and ART treatment regimen. The researcher effectively presented the analysed data, along with their interpretations, using tables and graphs to facilitate a clearer understanding of the results. The comprehensive approach to data analysis and presentation ensured the validity and reliability of the research outcomes. Furthermore, the Chi-square test was used to examine the association between viral suppression status and gender, age, retention, stage, area of residence, functional status,

and disclosure status.

Inferential statistics are statistical techniques used to make estimates or inferences about the characteristics of interest for a population using the data from a sample data set (McNabb 2021:78). According to Martin (2018:802), inferential statistics included regression analysis, simple linear regression, multiple regression, standardised scores, and standard deviations. Inferential statistics were used to determine the relationship between retention in HIV care and different variables. These variables included gender, age, marital status, educational status, religion, patient address, patient history of opportunistic infections at enrolment, WHO stage HIV at enrolment, last follow-up ARV adherence, HIV disclosed status at enrolment, last follow-up ARV adherence, and baseline BMI results.

Logistic regression was performed to test relationships between the factors considered to be relevant to retention in HIV care. Logistic regression (Logit) is used to describe data and explain the relationship between one dependent binary variable and one or more metric (interval or ratio-scale) independent variables (McNabb 2021:216). For inferential statistics, a p-value of less than 0.05 ($P<0.05$) was set as the level of statistical significance for the tests performed (Grove, Burns & Gray 2021:1081).

4.7.3.11 Validity and reliability in quantitative phase

The key concepts of research methodology in quantitative studies are validity and reliability (Lehrer 2019:88). According to Lehrer (2019:88), validity refers to the question of whether the researcher is really measuring what they intend to measure, while reliability is primarily about whether findings are independent of the researcher, or more generally, whether similar results can be expected under similar circumstances. In the view of Du Plock (2021:206), reliability is the consistency of a measure's ability to return similar results from the same respondent when used in the same circumstances each time it is completed, while validity refers to the ability of a measure to do so. Furthermore, measures of quantitative approach validity and reliability were discussed as follows:

4.7.3.11.1 Validity

Validity is a broad concern that depicts the unbiased and well-groundedness of the evidence of the study (Polit & Beck 2017:241). Furthermore, validity is an important criterion for evaluating methods to measure variables (Polit & Beck 2017:241). According to Patten and Newhart (2018:126), validity relates to the extent of a measuring instrument's capture of the information; it is intended to measure or accurately perform the function it claims to perform. In this study, the researcher ensured validity by applying external, internal, content, and face validity to the instrument, as discussed below.

4.7.3.11.1.1 Internal validity

Internal validity is a measure of the worth of the overall research design (Faulkner & Faulkner 2018:101). According to Grove and Gray (2019:254), internal validity is premised on the extent of the study's true reflection of reality, rather than the product of irrelevant variables. Prior to the collection of data, pre-testing of the preferred research instrument was conducted for the purpose of ensuring its accurate measurement of the real world.

The pre-test demonstrated the final research instrument's relevance, validity, and the appropriate categorisation of variables in relation to the research title. In this study, internal validity was ensured by means of a protracted literature review on the precedence of independent variables over dependent variables. Accordingly, the study's clinical records were selected randomly, and logistic regression was applied to test the association between dependent and independent variables while also controlling the effect of confounders.

4.7.3.11.1.2 External validity

External validity is the degree of the findings' generalisation to a wider population, cases, settings, times, or situations, that is, to the transferability of the findings (McNabb 2021:254). According to Rosenstein (2019:37), the findings should not be confined to a small population of the study but should be generalizable to a larger population. The researcher selected a sufficient number of samples, applied random sampling, and applied scientific research methods to determine the sample size. In order to ensure

external validity, the results could therefore be generalised to the other healthcare facilities in Ethiopia providing same-day ART initiation services.

4.7.3.11.1.3 Content validity

Content validity is premised on the evaluation of a research instrument's capacity to address all aspects of the estimated variable prior to the data collection (Brink et al 2018:152). Additionally, content validity refers to the assessment of how effectively an instrument encompasses all aspects of the variable to be measured, and it is a critical step that precedes data collection (Brink et al 2018:152). Ensuring comprehensive coverage of relevant elements within the instrument is vital to maintaining its validity in measuring the intended construct. The content validity of the instrument was checked by the supervisor, statistician, and town health office-level health experts working in HIV/AIDS programmes before the main study was conducted. Furthermore, the data collection checklist was pre-tested in selected healthcare facilities, similar to the main study.

4.7.3.11.1.4 Face validity

Face validity is the instrument's apparent ability to measure what it is supposed to and is essentially based on an intuitive judgement made by experts (Brink et al 2018:152). According to Polit and Beck (2017:450), face validity is the determination of the research instrument's actual measurement of the target construct. In this study, to ensure face validity in a research instrument, the researcher developed a data collection checklist that clearly defined the construct, was reviewed by a statistician, supervisor, and town health office-level health experts working in HIV/AIDS programmes, conducted pre-testing, ensured cultural appropriateness, and reviewed and revised the instrument as needed.

4.7.3.11.2 Reliability

Reliability relates to the degree to which random error is absent from a particular measurement procedure; consistency and repeatability of measurements give that consistent result (Patten & Newhart 2018:136). Reliability examines the stability or consistency according to which the instrument actually calibrates what it does measure (Mukherjee 2019:79). Coefficient alpha, also called Cronbach's alpha, provides a

reliability estimate that can be thought of as the average of all possible split-half corrections corrected by the Spearman-Brown formula (Baran & Jones 2016:168). However, in this study, a statistician was consulted, and it was confirmed that since the data collection checklist was categorical, it was not possible to use Cronbach's alpha to assess the internal consistency of a data collection instrument.

In order to ensure the instrument's reliability, the researcher took various measures. These included a data collection checklist that was evaluated for its presentation and relevance to the questions. Subsequently, health experts working in the HIV/AIDS programme at the town health office level were provided with the instrument to assess its reliability before commencing the study. Additionally, before conducting the main study, the instrument was pre-tested on 20 clinical records from two healthcare facilities in Adama Town that provide ART services to confirm its reliability. Furthermore, the supervisor and statistician checked the reliability of the instrument at the final stage. The quantitative data was also collected by the researcher from the smart care database.

4.7.4 Phase 3: Strategies development and validation

Phase 3 was the development of strategies and the validation of the developed strategies by health experts working on the HIV/AIDS programme at the Ministry of Health and regional health bureaus. Details on strategies development and validation were discussed as follows:

4.7.4.1 Strategies development

Strategy is about managing the future, which is frequently uncertain (Grundy 2017:35). According to Grundy (2017:35), strategy is all about choice, and whilst there may be many strategic options with good scores, it doesn't mean that one must go and do all of them, and certainly not now and all at once. Furthermore, strategy was defined as the way in which a business, government, or other organisation carefully plans its actions over a period of time to improve its position and achieve what it wants (Cambridge Dictionary online [c.d.]). The researcher intends to develop strategies for facilitating same-day ART initiation, tracing patients lost to follow-up, and establishing mechanisms for monitoring viral suppression.

By integrating Phase 1 and Phase 2, employing logical reasoning processes, and adopting the Health Belief Model as a theoretical framework, strategies for improving same-day ART initiation, lost to follow-up patient tracing, and viral suppression monitoring mechanisms were developed. Data obtained from Phase 1 and Phase 2 were analysed separately first and then integrated. According to Creswell and Creswell (2018:311), integration in mixed methods design occurs when data is merged, connected (used to explain or build), or embedded in the design. Furthermore, Creamer (2018:41) defined integration (mixing) as the linking, merging, or embedding of qualitative and quantitative strands of a mixed methods study. In this study, the integration of quantitative and qualitative data was done using the joint display method.

The joint displays provided a framework for integration, breaking down the cognitive process of merging, comparing, relating, and linking qualitative and quantitative data or results to assist in identifying meta-inferences (Factor & Ulhøi 2021:193). Furthermore, literature was used along with a theoretical framework that underpins this study in order to develop strategies. Theoretical frameworks help organise ideas and plan research, interventions, and analysis (Glanz et al 2015:141). In this study, during strategies development, the researcher applied the Health Belief Model as a theoretical framework to provide guidance in the approach for strategies development.

The Health Belief Model (HBM) is a model that is based on certain predictors of a person's perception of threat severity, susceptibility, interventional benefits, and self-efficacy about a health threat and can be used to promote and educate health behaviour (National Library of Medicine online [n.m.]). The Health Belief Model was applied in the development of strategies for improving same-day ART initiation, lost to follow-up patient tracing, and viral suppression monitoring mechanisms by considering how individuals' perceptions of health risks, benefits, barriers, and cues to action influence their behaviours.

Additionally, the researcher employed logical reasoning (inductive and deductive) in developing strategies for improving same-day ART initiation, lost to follow-up patient tracing, and viral suppression monitoring mechanisms in HIV care. Polit and Beck (2017:30) assert that logical reasoning is an essential component of problem-solving in research, as it combines experience, intellectual faculties, and formal systems of thought to reach valid conclusions. Inductive reasoning and deductive logical reasoning were

used in the development of strategies for same-day ART initiation, tracing HIV patients who were lost to follow-up, and viral suppression monitoring mechanisms.

Inductive logical reasoning is the process of making generalisations based on specific observations or facts gathered from qualitative findings and quantitative results (Polit & Beck 2017:30). According to Polit and Beck (2017:30), the conclusions drawn from inductive reasoning are based on the views and perspectives of the respondents or the phenomena being studied (Polit & Beck 2017:30). Deductive reasoning, on the other hand, was used to develop specific predictions from general principles. This process involves drawing specific conclusions from established theories or general principles. Deductive reasoning is useful in the development of research hypotheses, which are then tested through empirical data (Polit & Beck 2017:31).

4.7.4.2 Strategies validation

Validation is a process that emanates from the scientific traditional methods for the purpose of substantiating the accuracy of conceptual meanings in terms of empiric evidence, interacts with replication to challenge and authenticate empiric knowledge, and may also refer to newer methods for establishing the credibility or truth value of knowledge structures within the empiric pattern (Chinn, Kramer & Sitzman 2021:267). The Cambridge Dictionary (online [c.d.]) also defined validation as the act or process of making something officially or legally acceptable or approved. The researcher used the Modified Delphi technique for strategies validation. The Delphi technique is a means of collecting data from a diverse group of people for the purpose of reaching a consensus (Rasmussen 2007:240).

According to Frey (2018:480), the Delphi technique usually consists of three to five rounds of data collection based on the subject matter being studied. In this study, the developed strategies were validated in two rounds of the Modified Delphi technique by healthcare experts with master's and doctoral degrees in health who are working in HIV programmes at federal and regional health bureaus. The Modified Delphi technique’s purpose is to draw expert consensus concerning the final validation of the developed strategies. The experts reached consensus on strategies validation in two rounds of the Modified Delphi technique. The purpose of validation was to corroborate the feasibility of the developed strategies, their acceptability, and their sustainability in the anticipated context.

Clarity, relevance, acceptability, achievability, applicability, effectiveness, sustainability, and feasibility were among the validation criteria that could be used to determine whether a strategy has been validated (Jira 2022:206). In this study, these criteria were used for strategies validation (refer to Annexure 40). Participants for preliminary strategies validation were purposefully selected from health experts with Masters and doctoral degrees working at regional health bureaus and Federal Ministries of Health in the HIV/AIDS programme (refer to Annexure 41 for startegies validation participant profiles) to determine the content and its feasibility in the Ethiopian context until the final strategies were developed. Furthermore, the preliminary strategies developed were reviewed by the healthcare experts and supervisor before being finalised. The steps of strategies development and validation were discussed in detail in Chapter 7.

4.7.4.2.1 Setting

The researcher did not specify a particular setting. The validation was conducted within the context of healthcare experts being engaged in the HIV/AIDS programme at both the Federal Ministry of Health (MoH) and regional health bureaus (RHB) across various regions of Ethiopia.

4.7.4.2.2 Population for stategies validation

Healthcare experts with an advanced degree (MPH, MSc, MD, PhD) and at least five years in HIV programmes.

4.7.4.2.3 Sampling technique and sample

A purposive sampling method was employed to select ten (10) healthcare experts from the Federal Ministry of Health and the regional health bureaus.

4.7.4.2.4 Inclusion and exclusion criteria

Inclusion criter, Healthcare experts with:

- MPH, MSc in Nursing, Epidemiology, MSc in M&E, MD, or PhD in Public Health, Nursing, or Epidemiology

- Currently employed in HIV programmes at MoH and selected regional health bureaus
- A minimum of five years' experience in HIV programmes.

Exclusion criteria:

- Healthcare experts without a Master's degree (MPH, MSc) or higher in relevant fields (Nursing, Epidemiology, Monitoring and Evaluation, Public Health)
- Healthcare experts with less than five years of experience in HIV programmes
- Healthcare experts not currently involved in HIV programmes at the MoH or selected regional health bureaus

4.7.4.2.5 Development of data collection instrument

The strategies validation evaluation tool was designed to assess feasibility, acceptability, and sustainability for enhancing HIV prevention, care, and treatment. Criteria such as clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability guided both rounds of validation (Jira 2022:206). The researcher developed an evaluation tool (refer to Annexure 50) comprising Section A for socio-demographic details to address inclusion criteria and Section B for validation criteria and descriptions.

4.7.4.2.6 Data collection

Validation of the strategies comprised two rounds of data collection, ensuring ongoing engagement from health experts. Each expert provided consent to participate and received the evaluation tool via email. Subsequently, completed evaluation forms were electronically collected from each expert (refer to Chapter 7 for details).

4.7.4.2.7 Data management and analysis

Data collected in round one was analyzed based on the specified criteria and scoring system. Strategies with an average score of 30 (75%) or higher out of a possible 40 points were considered for further validation in round two. Based on the evaluators' scores and comments, the researcher summarized the results, and 15 out of 16 strategies met the criteria and were sent to evaluators for round two. In the second round, the selected 15 strategies were re-evaluated using the same criteria, with each strategy needing to score at least 32 points (80%) of the total possible score to pass.

4.8 ETHICAL CONSIDERATIONS

According to Walliman (2018:44), there are two aspects of ethical issues in research regarding the individual values of the researcher relating to honesty, frankness, and personal integrity and the researcher's treatment of other people involved in the research relating to informed consent, confidentiality, anonymity, and courtesy. According to Wilson and Darling (2020:4), ethics must be considered when designing questions, determining which methods are appropriate for work, and developing methods for accessing research subjects and materials. According to Polit and Beck (2017:231), ethics in research involves not only the protection of human and animal subjects but also the protection of public trust. In this study, the researcher adhered to all research ethical procedures as stated below.

4.8.1 Researcher- specific ethical considerations

4.8.1.1 Permission to conduct the research

The researcher received an ethical clearance certificate from the University of South Africa's Department of Health (refer to Annexure 1 for the UNISA ethical clearance certificate). Permission to conduct the study was requested from the Oromia Regional Health Bureau (refer to Annexure 4 for request permission to conduct from Oromia Regional State). The attached Letter of Support from the UNISA Regional Centre and UNISA COVID-19 statement guidelines were attached to the proposal for ethics committee review (refer to Annexure 2 for the UNISA Regional Learning Centre support letter and Annexure 3 for the UNISA COVID-19 statement guidelines). Approval was subsequently granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo), and a formal request to collect data was submitted to the medical directors of healthcare facilities 1 and 2 (refer to Annexure 14 for Healthcare Facility 1 request permission to conduct and Annexure 15 for Healthcare Facility 2 request permission to conduct). Data was collected after permission was given from healthcare facilities 1 and 2 (refer to Annexure 16 for granted permission to conduct study from Health Facility 1 and Annexure 17 for granted permission to conduct study from Health Facility 2). Permission to conduct the study was used as a consent form to access clinical records of patients started on same-day ART from the smart care database for the quantitative phase data collection.

Prior to data collection, a formal request to conduct pre-testing was also requested from the Adama Town Health Office (refer to Annexure 7 for requested permission to conduct pre-testing at Adama Town). Approval for conducting the pre-test was granted by the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct a study from ORHB in Afan Oromo) and the Adama Town Health Office (refer to Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo and Annexure 9 for permission to conduct pre-testing from Adama Town Health Office in English).

A request for permission to conduct pre-testing was submitted to Healthcare Facility A (refer to Annexure 10 for Healthcare Facility A, request permission to conduct pre-testing) and Healthcare Facility B (refer to Annexure 11 for Healthcare Facility B, request permission to conduct pre-testing), with approval received from the Oromia Regional Health Bureau and Adama Town Health Office (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo and Annexure 8 for permission to conduct pre-testing from Adama Town Health Office in Afan Oromo). Pre-testing was conducted after approval was received from healthcare facilities A and B (refer to Annexure 12 for granted approval to conduct pre-testing from Health Facility A and Annexure 13 for granted approval to conduct pre-testing from Health Facility B). Permission letters received from the Oromia Regional Health Bureau and Adama Town Health Office were translated from the local language, Afan Oromo, to English for supervisors and examiners (refer to Annexure 6 for permission granted to conduct study from ORHB in English translation for supervisors and examiners and Annexure 9 for permission granted from Adama Town Health Office to conduct pre-testing English translation for supervisors and examiners).

*4.8.*2 Participants'-focused ethical considerations

4.8.2.1 Informed consent

According to Woodfield (2017:63), informed consent involves giving sufficient information about the research and ensuring that there is no explicit or implicit coercion so that prospective participants can make an informed and free decision on their possible involvement in the study. Informed consent refers to conditions within which exercising

autonomy is made possible for a research subject, the aims and duration of the research, possibly associated risks, how to leave the study if you no longer wish to participate, any responsibilities or benefits associated with being part of a study, how the results will be analysed and stored, and who has a right to access results or data (Mustajoki & Mustajoki 2017:48). Participants decide whether to take part according to the information they receive about the research. Information given to participants should be clear and precise in order for them to make a fair assessment of the project (Walliman 2018:44).

For the qualitative phase, to avoid the risk of getting a COVID-19 pandemic on level 4, the researcher used data clerks of the respective healthcare facilities who were oriented by the researcher for the purpose of explaining the study purpose. An information sheet and informed consent form were distributed by data clerks after an explanation of the study purpose was provided by the researcher telephonically. The researcher requested patients via cell phone to voluntarily sign informed consent in the ART clinic with the data clerk's assistance (refer to Annexure 30 for the informed consent form for healthcare providers in English and Annexure 31 for the informed consent form for patients in Afan Oromo). Healthcare providers were contacted by the researcher through their email address and Telegram channel to get their consent.

Patients were contacted through the data clerk for consent form signatures. Additionally, the researcher contacted the participants via cell phone and assured them that they were entitled to withdraw from the study at any time without any penalty. For the quantitative study's document analysis, the healthcare facility granted permission for the study to be conducted (refer to Annexure 16 for granted permission to conduct study from Health Facility 1 and Annexure 17 for granted permission to conduct study from Health Facility 2).

Regarding the strategies validation, health expert participants were requested for participation in the strategies validation, and an invitation letter was sent to each health expert (refer to Annexure 41 for startegies validation participant profiles). An informed consent to participate in strategies validation was obtained from all health expert participants before the validation process (refer to Annexure 48 for an informed consent form for participants in strategies validation). Participants who agreed to validate the strategies and had signed the informed consent form were requested to evaluate and validate the interim strategies.

4.8.2.2 Anonymity

Anonymity refers to the context in research where the research participant's identity is either never made known to the researcher or where the known identity of the research participant, group, and/or community is removed or masked by the researcher in any research outputs or documents accessible to others (Nortjé, Visagie & Wessels 2019:238). Woodfield (2017:102) explained anonymity as a key consideration in research ethics, particularly in qualitative research practices. According to Woodfield (2017:102), with traditional forms of research, it is generally straightforward to anonymize data so that research participants cannot be identified. In this study, anonymity was ensured by removing any identifying information related to the research setting, and respondents were removed from all hard copies and when disseminating research findings in journal articles. Additionally, anonymity was ensured by the non-disclosure of respondents' names on strategies evaluation tools, interview guides, and checklists.

4.8.2.3 Confidentiality

Confidentiality refers to those who have legitimate or privileged access to private and sensitive information and have a fiduciary obligation to protect it from unauthorised disclosure, access, or use (Nortjé et al 2019:238). Kumar (2019:471) explained that it is unethical to share a respondent's information for reasons that are unrelated to research. In that regard, the researcher did not divulge any identifying information about the participants through written or other means of communication. Furthermore, any information concerning the study was safely kept and used only for academic purposes.

Therefore, the information was shared with the supervisor of the study only if requested. Information about a participant's confidentiality is obtained by allocating numbers to each record so that the names of the patients are not revealed and do not appear on the data collection checklist. Confidentiality was ensured by the researcher's signing of a confidentiality binding agreement (refer to Annexure 18 for the confidentiality binding agreement signed by the researcher for healthcare providers in English and Annexure 19 for the confidentiality binding agreement signed by the researcher for patients in Afan Oromo). For the quantitative approach part, confidentiality was also ensured by the statistician's (refer to Annexure 28 for a signed confidentiality binding agreement by the statistician), and for the qualitative phase, a co-coder's (refer to Annexure 29 for a signed

confidentiality binding agreement by the co-coder) signed confidentiality binding agreement form. Furthermore, in healthcare facilities included in this study, human resources and data clerks have signed confidentiality binding agreements (refer to Annexures 20, 22, 24 & 26 for human resources unit heads and Annexures 21, 23, 25 & 27 for data clerks).

4.8.2.4 Beneficence

According to Polit and Beck (2017:211), it is the responsibility of researchers to eliminate harm and optimise benefits for human participants. Accordingly, beneficence entails caring for both the research subjects and society, evaluating the costs and benefits, and making sure that the unpleasant is outweighed by the pleasant (Koepsell 2017: 67). The study was non-experimental, and there was no risk of threats to the study participants. There is no benefit from this study at an individual level for participation in the study. However, the outcome of the study could be beneficial for HIV-infected patients, and this was explained to the participants before the interview. Participation in the study has no potential harmful effect on the participants, who were informed of this prior to the interview.

4.8.2.5 Justice

Justice is another requirement of equal treatment and is linked to the notion of dignity (Koepsell 2017: 67). Polit and Beck (2017:214) allude to the fact that justice pertains to the participants' right to be treated fairly and in recognition of their privacy rights. The participants' information and details were kept private, and the collected data was assigned a specific number for identification. Moreover, the information was kept anonymous, with no links made to patients or healthcare providers who participated in the study. No records were taken out of the medical recording unit of the ART clinic.

4.8.2.6 Privacy

The right to privacy is non-negotiable, and the subjects must be respected as unique human beings and treated appropriately (Nortjé et al 2019:238). According to Nortjé et al (2019:238), privacy is the duty of research to consider the possible effects of research on participants before they begin any study. Privacy was maintained by ensuring anonymous

participation, with individual interviews conducted by the researcher via cell phone and a code allocated to each record.

4.8.2.7 Risk and benefit assessments

The assessment of risks and benefits demands a careful diversity of relevant data, including alternative ways of acquiring the benefits sought in the research (Koepsell 2017: 112). A summary of the risks and benefits should be communicated to recruited individuals so that they can evaluate whether it is in their best interest to participate (Polit & Beck 2017:215). Participants were informed of the risks and benefits related to the study through their cell phone and email. To avoid the risk of the COVID-19 pandemic, which was on level 4, data was collected remotely through cell phone interviews, and clinical records were accessed through email. For the quantitative phase, a smart care database was selected for data collection to avoid the risk of getting COVID-19, which reduces contact between medical record unit workers, data clerks extracting clinical records, and the researcher for the data collection process.

4.9 SUMMARY

This chapter provided details on the study design, population, sampling technique, sample, data collection, data analysis, the validity and reliability of quantitative methods, and measures utilised in ensuring the qualitative study's trustworthiness and authenticity, as well as the applicable ethical considerations. The next chapter presents a discussion of the Phase 1 data analysis.

CHAPTER 5
PHASE 1: QUALITATIVE APPROACH

5.1 INTRODUCTION

The researcher discussed methodology in the previous chapter. In this regard, the focal point would be presentation, analysis of data, and the findings' interpretation from the qualitative phase, which is evidence based on in-depth interviews. Phase 1, which is a qualitative phase, aims to explore and describe same-day antiretroviral therapy initiation and its association with viral suppression and retention in Ethiopian healthcare facilities.

The presentation of the findings is related to the study's objective. These findings are discussed based on the main themes that emerged from the research questions, the reduction and coding of the data gathered using a qualitative phase interview guide (refer to Annexure 34 for an interview guide for ART patients and Annexure 35 for an interview guide for the ART clinic healthcare provider team).

5.2 DEMOGRAPHIC DATA

The total number of participants in the study was 30, which comprised 20 healthcare providers working in the ART clinics and 10 patients started on same-day ART from the 1st of October 2017 until the 30th of October 2019 in two selected healthcare facilities. Participants were four (4) physicians, seven (7) nurses, five (5) adherence supporters, four (4) case managers, and ten (10) patients who started on same-day ART. Thirteen (13) of the healthcare providers were from Healthcare Facility 1, seven (7) were from Healthcare Facility 2, and five (5) patients were from each healthcare facility. To ensure participant anonymity, a coding system was used, with "Ph" representing physicians, "N" representing nurses, "CM" representing case managers, "AS" representing adherence supporters, and "P" representing patients. Table 5.1 below indicates the participants' demographic characteristics.

Table 5.1: Demographic data of study participants

S.No	Categories	Participants code	Age	Sex	Religion	Place of residence
1	Physician	Ph1	36	M	Protestant	Urban
2	Physician	Ph2	42	M	Protestant	Urban
3	Physician	Ph3	35	M	Protestant	Urban
4	Physician	Ph4	45	M	Protestant	Urban
5	Nurse	N1	38	F	Protestant	Urban
6	Nurse	N2	40	F	Protestant	Urban
7	Nurse	N3	41	F	Protestant	Urban
8	Nurse	N4	37	F	Muslim	Urban
9	Nurse	N5	34	F	Orthodox	Urban
10	Nurse	N6	37	F	Orthodox	Urban
11	Nurse	N7	35	F	Protestant	Urban
12	Case Manager	CM1	24	F	Orthodox	Urban
13	Case Manager	CM2	19	F	Muslim	Urban
14	Case Manager	CM3	35	F	Orthodox	Urban
15	Case Manager	CM4	19	F	Orthodox	Urban
16	Adherence Supporters	AS1	46	F	Orthodox	Urban
17	Adherence Supporters	AS2	42	M	Protestant	Rural
18	Adherence Supporters	AS3	38	F	Muslim	Urban
19	Adherence Supporters	AS4	32	F	Protestant	Urban
20	Adherence Supporters	AS5	39	F	Orthodox	Urban
21	Patient	P1	38	M	Orthodox	Rural
22	Patient	P2	46	M	Orthodox	Rural
23	Patient	P3	25	M	Protestant	Urban
24	Patient	P4	23	F	Orthodox	Urban
25	Patient	P5	30	F	Protestant	Rural
26	Patient	P6	34	F	Orthodox	Urban
27	Patient	P7	31	M	Orthodox	Urban
28	Patient	P8	34	F	Orthodox	Urban
29	Patient	P9	54	F	Orthodox	Urban
30	Patient	P10	24	F	Orthodox	Rural

Table 5.1 showed that the patients were (33.3%), nurses (23.3%), adherence supporters (16.7%), physicians (13.3%), and case managers (13.3%). The study participants' ages ranged from 19–54 years, with an average age of 35 years. Female participants consisted of 70% of the total, while male participants were 30%, and 83% of participants live in cities. In terms of religion, Orthodox religion followers consisted of 50%, Protestant religion followers 40%, and Muslims 10%.

5.3 DATA MANAGEMENT AND ANALYSIS

The researcher collected the qualitative phase's data from those participants who fulfilled the inclusion criteria of the study (refer to Table 5.1). Data was collected using an in-depth interview. Following data collection, the researcher took the following eight key steps to analyse the data, which led to the research findings: Thematic data analysis was used, and an in-depth interview was transcribed along with field notes captured during the in-depth cell phone interview as back-up data and coded to generate themes and sub-themes. Creswell and Clark (2018:215) refer to coding as a process of grouping evidence and labelling ideas to reflect broader perspectives. Furthermore, the co-coder's services were utilised since she is an experienced qualitative data analyst and in possession of a doctorate degree for coding purposes (refer to Annexure 38 for proof of coding qualitative data). The independent coder also confirmed that data saturation had occurred because four or more themes and sub-themes were presented to all categories of participants interviewed. The eight (8) steps of Tesch's inductive, descriptive open coding technique described in Creswell (2014:248) were utilised based on the following steps in the qualitative phase of data analysis.

5.3.1 Step 1: Reading through the data

All verbatim transcripts were carefully read through. As such, that process gave ideas about the appearance and meaning of the data segments. A recording of the meaning that emerged was made, including all ideas that came to mind. The transcripts were carefully and repeatedly read through with understanding.

5.3.2 Step 2: Reduction of the collected data

The collected data were scaled down to codes based on the existence or frequency of concepts used in the verbatim transcriptions. In this regard, a list was compiled of all the topics that came up during the scaling down process. Similar topics were then grouped together in order to determine those that did not have an association so that they could be separated and clustered. Notes were written on the margins, and thoughts about the data were recorded on the margins of the paper, where the verbatim transcripts appear.

5.3.3 Step 3: Asking questions about the meaning of the collected data

The transcriptions were read through and analysed again. This time, the researcher questioned the interview transcriptions based on the codes (mental picture codes when reading through) that existed due to the frequency of the concepts. The questions were, "*Which words describe it?*" "*What is this about?*" and "*What is the underlying meaning*?"

5.3.4 Step 4: Abbreviation of topics to codes

In this sub-section, the topics that had emerged as codes were abbreviated and written next to the appropriate segments of the transcription. Differentiation of the codes by including all meaningful instances of a specific code's data was done. The researcher wrote all the codes on the margins of the paper against the presented data, which contained a different pen colour than the one in Step 3.

5.3.5 Step 5: Development of themes and sub-themes

Themes and sub-themes were developed from the coded data and the associated texts. Topics that relate to one another were grouped together to reduce the total list and create meaning for the themes and sub-themes.

5.3.6 Step 6: Compare the codes, topics, and themes for duplication

In this step, the researcher scrutinised codes, topics, and themes to check for duplication using the list of all codes. Similarly, those codes that were necessary were grouped and recoded so that they fit in the description.

5.3.7 Step 7: Initial grouping of all themes and sub-themes

A column was populated to insert data belonging to each theme. Following communication between the researcher and co-coder, consensus was reached to address themes and sub-themes independently.

5.4 PRESENTATION AND INTERPRETATION OF FINDINGS

This section provides an overview of the major themes and sub-themes that emerged from the Phase 1 data analysis. To arrive at the themes and sub-themes that emerged, the researcher and co-coder went through a rigorous step-by-step analysis (refer to item 5.3). Every transcript was attended to independently in order to determine key statements to be able to describe the participants' perceptions of the same-day antiretroviral therapy initiation status associated with viral suppression and retention in HIV care.

The study revealed 21 themes and 114 sub-themes that are presented, discussed, and interpreted separately below by study participants, who were classified as physicians, nurses, case managers, adherence supporters, and patients (refer to Table 5.1). Participants' interviews were used to support the themes and sub-themes in verbatim and are indicated in italics. In order to interpret the findings, the health belief model and theory-reasoned action concepts were used (refer to Chapter 3, item 3.5). The study participant's physicians were labelled "Ph1-Ph4" and followed by the participant's number in order to differentiate participants. Similarly, nurses (N1-N7), case managers (CM1-CM4), adherence supporters (AS1-AS5), and patients (P1-P10) are labelled as mentioned in Table 5.1 above (refer to Table 5.1). The participants' experience related to same-day ART initiation and its association with viral suppression and retention in HIV care was interpreted using HBM components: perceived barriers, perceived benefit, and cues to action.

Table 5.2: Number of themes and sub-themes of different participants

Tables	Participants	Themes	Sub-themes
Table 5.3	Physicians	5	26
Table 5.4	Nurses	3	20
Table 5.5	Adherence supporters	4	23
Table 5.6	Case managers	4	22
Table 5.7	Patients	5	23
	Total	**21**	**114**

5.4.1 Physicians

Four physicians from Ethiopian hospitals and health centres' ART clinics participated in this study, contributing their experiences with same-day antiretroviral therapy (ART). Their insights were analysed across five themes and 26 sub-themes, detailed in Table

5.3, which explored ART initiation, viral suppression, and retention in HIV care. These findings provided a comprehensive examination of physicians' roles and perspectives within HIV treatment.

The study also applied the health belief model to categorise physicians' perspectives into perceived barriers, benefits, and cues to action in HIV care. Themes one and two identified perceived barriers, themes three and four highlighted perceived benefits, and theme five provided cues to action, suggesting enhancements to ART initiation strategies, improvements in follow-up procedures, implementation of patient tracing mechanisms, and strengthening of ongoing monitoring efforts.

Table 5.3: Physicians experiences on same-day ART initiation

Themes	Sub-themes
Theme 1: Challenges related to same-day ART initiation	1.1 Paradoxical explanations of the challenges experienced related to SDI-ART 1.2 Various unexpected results were experienced with the SDI-AR 1.3 Reasons for refusal of same-day ART initiation by newly HIV+ 1.4 Poor adherence to medical instructions after SDI-ART 1.5 Health-seeking behaviour of patients diagnosed with HIV 1.6 Lack of relevant information related to HIV and ART is blamed for all challenges 1.7 Challenges related to delayed SDI-ART and interventions 1.8 Reasons why SDI-ART patients lost to follow-up care
Theme 2: Processes followed to enrol newly diagnosed HIV+ patients	2.1 Analogous processes are followed at different facilities by various HCPs for SDI-ART 2.2 Processes for referral of newly diagnosed HIV+ clients to ART clinics and hospitals 2.3 Further management after the patient tested positive 2.4 Explanation of different types of initiatives related to SDI-ART 2.5 Eligible criteria versus un-qualifying criteria for newly diagnosed HIV+ patients for enrolment in SDI-ART
Theme 3: Observed outcomes **and** results related to SDI-ART	3.1 Disadvantages of SDI-ART patients as opposed to those who are not initiated 3.2 Benefits of SDI-ART and its importance for adherence to treatment 3.3 The advantages of SDI-ART which outweighs the disadvantages leading to minimal lost to care for patients were described 3.4 Access to HIV and ART information benefits explained 3.5 Suggested interventions of the disadvantages for SDI-ART to critically ill patients
Theme 4: Medical interventions to assist **and** care **for** HIV+ patients	4.1 Multiple in-depth counselling sessions with various HCPs suggested prior SDI-ART 4.2 Description of counselling content and benefits of sessions (importance of adherence and support)

	4.3 Description of various strategies used to track HIV+ patients lost to care 4.4 M&E mechanisms used to evaluate treatment outcomes for SDI-ART were explained 4.5 Description of monthly and or consistent monitoring of patients on SDI-ART
Theme 5: Suggestions of other strategies **for** ART initiation, follow-up, tracing, and monitoring	5.1 SDI-ART suggests with emphasis on the importance of ART adherence 5.2 Implementation of reductions in lost to follow-up care strategies 5.3 Patients' card management strategies employed, and benefits were explained

5.4.1.1 Theme 1: Challenges related to same-day ART initiation

This theme was utilized to explore perceived barriers faced by physicians in addressing challenges related to same-day ART initiation (SDI-ART) among newly diagnosed HIV-positive patients. Within this theme, the sub-theme focused on paradoxical explanations of the challenges associated with SDI-ART revealed various unexpected results. These results encompassed reasons for the refusal of same-day ART initiation by newly diagnosed HIV-positive individuals, as well as issues concerning poor adherence to medical instructions following SDI-ART. Additionally, the sub-theme addressed the health-seeking behavior of patients upon HIV diagnosis and highlighted the lack of relevant information about HIV and ART as a significant factor contributing to these challenges. Moreover, it delved into the difficulties related to delayed SDI-ART and explored interventions aimed at mitigating these challenges. Finally, the sub-theme examined the reasons why patients initiated on SDI-ART were lost to follow-up care, providing insights into the complexities faced by healthcare providers in managing SDI-ART effectively. The participants' descriptions of challenges pertaining to same-day ART were divided into eight sub-themes, which are as follows:

5.4.1.1.1 Sub-themes

5.4.1.1.1.1 Sub-theme 1: Paradoxical explanations of the challenges experienced related to SDI-ART

Physicians perceived paradoxical explanations regarding the challenges of same-day ART initiation (SDI-ART). Participants in the study expressed conflicting views on the origins of these challenges. Some attributed them solely to patient factors, highlighting issues such as patient readiness and understanding. Conversely, others emphasised that

challenges stemmed from both healthcare providers and patients, citing factors like communication gaps and varying levels of healthcare access and support. This divergence in perspectives underscores the complex nature of SDI-ART implementation and the multifaceted barriers perceived by physicians in this context.

Findings in this study are aligned with a study that was conducted in East Gojjam Zone, northwest Ethiopia, on facilitators and barriers to the same-day initiation of antiretroviral therapy. According to this study, the major reasons raised for delaying ART commencement in asymptomatic patients were fear of lifelong commitment to drug adherence, fear of potential drug side effects, the psychological importance of being "free from drugs," and the counselling approach of healthcare providers (Moges, Adesina, Okunlola & Berhane 2020a:1807). Participants perceived severity and vulnerability about the behaviour of patients and healthcare providers approach have been explained in this finding as challenges for same-day ART initiation.

Two (2) participants were quoted saying:

> **Ph1:** "*The problem with same-day ART initiation is that patients may not hear during counselling. When we provide the ART, they take the medication home, but they may not take it at all or sometimes. The patients do not stay in HIV care because the same-day ART initiation does not break all patients' barriers to ART*."

> **Ph3**: "*The first source of challenges are the patients themselves. Some patients do not accept the result and prefer holy water or prayer rather than medical treatment. This is the most common problem we face in same-day ART initiation. They consider the medical treatment to be secondary due to the disclosure issue. Sometimes a lack of willingness to start patients on same-day ART might be from the healthcare provider's side*."

On the other hand, the participants explained that the source of challenges regarding same-day ART initiation is both healthcare providers and patients.

Two (2) participants were quoted saying:

> **Ph3**: "*Sometimes a lack of willingness to start patients on same-day ART might be from the healthcare provider's side. Healthcare providers avoid same-day ART initiation due to fear of lost to follow-up. This may be a lack of confidence in*

counselling and a gap in skills, or it may be due to a shortage of time as many patients are waiting for the clinician."

Ph4: "*Same-day ART initiation challenges can come from both patients and healthcare providers. One issue is patients' readiness for same-day ART initiation. If the patient is not ready to start ART on the same-day or if the ART provider's counselling is poor because time is insufficient to counsel the patient and make the patient self-prepared for chronic cases, there is also another challenge, which may be an opportunistic infection. Even if a patient is new and knows their results, it is difficult to disclose their HIV status, which may result in the patient losing their life even before starting ART, and this may result in the patient dying before receiving other services. I mean, people with advanced HIV may not be able to work.*"

5.4.1.1.1.2 Sub-theme 2: Various unexpected results were experienced with the SDI-ART

Physicians perceived various unexpected outcomes associated with same-day ART (SDI-ART). Participants reported instances where patients initiated on SDI-ART failed to adhere to their prescribed medications upon returning home. These unexpected results were attributed to patients prioritising alternative healing methods such as holy water or seeking intervention from religious leaders, which they believed held greater therapeutic efficacy compared to conventional medication. This perception among patients presented a significant barrier observed by physicians to the effective implementation of SDI-ART protocols.

The study conducted in Ethiopia on barriers and facilitators of same-day antiretroviral therapy initiation is similar to this study's finding in mentioning that patients take their medication after they try other alternative holy water and religious leaders pray via television and other media (Moges et al 2020a:1807). This demonstrates the gap between healthcare providers and patients, as well as a lack of public awareness creation and capacity building among religious leaders.

One (1) participant was quoted saying:

Ph1: *"… when we provide the ART, they take the medication home, but they may*

not take it at all or sometimes. They accept your idea when you counsel them to start same-day ART, but they do not take their medication as prescribed. The other one is fear of the drug's side effects. They sometimes tell us that once they are started on ART, the virus will be adopted by the drugs, so they prefer to start ART when they become sick rather than when they are healthy. That is a misunderstanding of the disease."

Another unexpected result of same-day ART initiation was the fact that patients dropped out of care after the first clinic visit due to cures for other opportunistic diseases and thought they were HIV-free. This was due to cure from other opportunistic infections, and patients perceived cue to action and considered themselves cured from HIV.

One (1) participant was quoted saying:

Ph2: *"… for example, a patient who comes with diarrhoea and is identified as HIV-positive and who is initiated on same-day ART will have an appointment after three months. The diarrhoea will improve after same-day ART initiation, but the patient assumes that he or she is recovering from the illness. Therefore, the patient will miss the second appointment because the illness may not be critical*."

5.4.1.1.1.3 Sub-theme 3: Reasons for refusal of same-day ART initiation by newly HIV+

Based on the findings, the patient refused to start ART for a number of reasons. Among the reasons given by participants, a lack of disclosure and a low acceptance of HIV positivity were the main reasons. Participants explained that patients want to prepare themselves to start ART, including disclosing it to their parents, partners, or any family members. On the other hand, patients who come for other clinical diseases in outpatient (OPD) settings withdraw and refuse same-day ART initiation because they have not accepted the result. According to HBM component interpretation, perceived barriers by patients due to family stigma result in refusal of same-day ART initiation. This finding concurred with a study conducted in Zambia on the reasons for patients to decline same-day antiretroviral therapy initiation, which showed that fear of disclosing to family, friends, and a lack of HIV positivity acceptance were reported among personal, social, and structural barriers to same-day ART initiation (Pry, Chipungu, Smith, Bolton Moore, Mutale, Duran-Frigola, Savory & Herce 2020:4).

Two (2) participants were quoted saying:

> **Ph1**: *"The first reason is that patients want to prepare themselves to start ART, and the other one is that they want to disclose it to their parents, partners, or any family members. This is why sometimes patients refuse to start same-day ART initiation*."

> **Ph2:** "*Those patients identified as positive by OPD withdraw and refuse ART initiation because they have not accepted the result. This is practically the challenge that we are facing in same-day ART initiation*."

5.4.1.1.1.4 Sub-theme 4: Poor adherence to medical instructions after SDI-ART

Physicians perceived poor adherence to medical instructions as a significant barrier following SDI-ART. Participants highlighted that after initiating same-day ART, patients often struggled with adherence due to the initial shock of receiving an HIV diagnosis. Despite physicians providing medication on the same-day, patients frequently failed to take it regularly or at all, influenced by their attitudes towards HIV as an incurable disease. Additionally, the COVID-19 pandemic exacerbated this issue, as multi-month dispensing protocols designed to enhance accessibility inadvertently contributed to decreased adherence rates. These factors underscore the complex challenges perceived by physicians in ensuring consistent adherence to ART regimens among newly diagnosed HIV-positive individuals undergoing SDI-ART.

Religious issues became the contributing factors to poor adherence after same-day ART initiation. This finding aligns with a study conducted in northwest Ethiopia on barriers and facilitators of same-day antiretroviral therapy initiation among people newly diagnosed, which showed the shock experienced by patients when they suddenly learned about one's HIV status. Stability is imperative for HIV-positive people so as to be able to accept their test results. The study also revealed that asymptomatic clients refused to start ART immediately following HIV-positive test results (Moges et al 2020a:1808).

Four (4) participants were quoted saying:

> **Ph1:** "*When we provide the ART, they take the medication home, but they may not take it at all or sometimes. The patients do not stay in HIV care because the same-day ART initiation does not break all patients' barriers to ART. They accept*

your idea when you counsel them to start same-day ART, but they do not take their medication as prescribed."

Ph2: "*The other challenge is that patients started on same-day ART are not being monitored due to COVID-19. They are being scheduled for three months, and this results in lost to follow-up and adherence issues. People who need continuous psychological or adherence support are being missed*."

Ph3: "*Different factors are associated with these lost to follow-up. The first one is factors associated with the counsellor's skill and knowledge. The other factors include distance from the healthcare facility, stigma, and disclosure issues. These conditions might be predisposing factors or might be the cause of same-day ART initiation, withdrawal, or lost to follow-up. Religious-related issues are the most common cause of being lost to follow-up that needs intervention*."

Ph4: "*When we initiate the client on the same-day, it may fail to follow-up. Due to a lack of time for strong counselling, it may be insufficient time to accept the result of HIV. And there are some challenges to disclosing the positives. So, all this contributes to lost to follow-up, and if the client is lost to follow-up, there will be poor adherence, and the viral load may not be suppressed as expected. As a result of the challenges associated with the acceptance of HIV results, same-day ART initiation may fail and result in lost follow-up*."

5.4.1.1.1.5 Sub-theme 5: Health-seeking behaviour of patients diagnosed with HIV

Physicians perceived the health-seeking behaviour of patients diagnosed with HIV as a notable barrier. Participants noted that these patients often exhibit complex health-seeking behaviours, particularly when dealing with opportunistic infections such as tuberculosis, cryptococcal meningitis, and other severe clinical conditions that necessitate ospitalization. This observation aligns with the theory of reasoned action, which underscores how motivational factors influence patients' actions in seeking treatment for these co-occurring infections as part of their HIV management strategy. This complexity in health-seeking behaviour poses a significant challenge perceived by physicians in managing the comprehensive care needs of HIV-positive individuals.

On the other hand, patients who do not accept their results want to confirm them again before ART initiation, while others prefer religious-based management before ART initiation. Similarly, a study conducted in West Shewa Zone, Ethiopia, on the experiences of antiretroviral therapy initiation among HIV-positive adults indicated that patients made use of religion as a coping mechanism to deal with and accept their HIV diagnosis, while others had been exposed to opportunistic infections (Tefera & Mavhandu-Mudzusi 2022:248). Patients perceived severity due to fear of HIV drug side effects and stigma, which led to lost to follow-up. It can sometimes lead to a refusal to accept HIV results.

One (1) participant was quoted saying:

> **Ph1:** "*… the first one is for patients with a pulmonary TB diagnosis. Any form of TB diagnosis is a contraindication for same-day ART initiation. The other one is cryptococcal meningitis, which is another contraindication for same-day ART initiation. The other one is the patient's refusal not to be initiated on same-day ART. In this case, we don't initiate same-day ART if the patient wants adherence preparation; we give extra time for preparation. In other ways, starting same-day ART is disadvantageous for critically ill patients. For such patients, it is better to first provide medical care*."

Another participant expressed a similar opinion regarding the difficulty of accepting a positive diagnosis.

Two (2) participants were quoted saying:

> **Ph2: "***Normally, a patient with cryptococcal meningitis is an inpatient service or needs admission. Then, following the guidelines, there are two scenarios depending on what has been used for cryptococcal meningitis. In this case, the patient will be admitted to inpatient medical care for 4-6 weeks for cryptococcal meningitis treatment and initiated on ART after that. For others, like TB, we will wait at least two weeks until the patient tolerates the anti-TB treatment. As soon as the patient tolerates the medical treatment, we will start on ART*."

> **Ph3**: "*Some patients do not accept the result and prefer holy water or prayer rather than medical treatment. This is the most common problem we face in same-day ART initiation. They consider the medical treatment to be secondary due to the disclosure issue. Sometimes a lack of willingness to start patients on same-day*

ART might be from the healthcare provider's side."

5.4.1.1.1.6 Sub-theme 6: Lack of relevant information related to HIV and ART is blamed for all challenges

Physicians identified patients' lack of pertinent information about HIV and ART as a notable barrier, analysed within the framework of the health belief model components. Findings revealed that insufficient understanding of HIV and ARV drugs among patients contributed to misinformation and uncertainty regarding same-day ART initiation and ARV medications. Moreover, inadequate information caused patients to harbour fears about potential side effects associated with ARV drugs. This perceived barrier arises due to restricted access to accurate information, ultimately compromising patients' adherence to prescribed medication regimens. Furthermore, the finding is consistent with a study conducted in west Shewa Zone, Ethiopia, on the experiences of antiretroviral therapy initiation among HIV-positive adults, which informed that the anticipation of drug side effects would discourage participants from initiating antiretroviral therapy early (Tefera & Mavhandu-Mudzusi 2022:250). According to Tefera and Mavhandu-Mudzusi (2022:250), some participants had started with ART rapidly without having experienced manifestations of illness.

One (1) participant was quoted saying:

> **Ph1:** *"… the second one is that patients sometimes do not have enough information on HIV and premature counselling leads patients not to stay in HIV care. They sometimes tell us that once they are started on ART, the virus will be adopted to the drugs, so they prefer to start ART when they become sick rather than when they are healthy. That is a misunderstanding of the disease*."

5.4.1.1.1.7 Sub-theme 7: Challenges related to delayed SDI-ART and interventions

Physicians perceived challenges related to delayed SDI-ART and interventions through the health belief model components. Participants highlighted various factors such as opportunistic infections, religious considerations, inadequate follow-up by healthcare providers, stigma, and discrimination, all contributing to delays in starting same-day ART initiation and potential interventions. They further emphasised the importance of capacity building for religious leaders, enhancing adherence support, and training healthcare

providers as key strategies to address these challenges associated with same-day ART initiation. A similar study on the barriers and facilitators of same-day antiretroviral therapy initiation in Ethiopia discovered that the intervention of expert patient trainers and capacity building for healthcare providers would improve the preparation phase for same-day ART initiation (Moges et al 2020a:1807).

Two (2) participants were quoted saying:

> **Ph2:** "*From my experience, recently we have tried to revise the positive track register. The patient registered on the positive track, whose reason for not initiating same-day ART may be registered as an opportunistic infection. still remains on opportunistic infection for a maximum of six months, which is impossible. Scientifically, that is impossible. That means we have many challenges in same-day ART initiation due to the patient being admitted for medical or surgical reasons that are not being followed or not being counselled*."
>
> **Ph3:** "…*the other is that one-to-one counselling is strengthening, including the involvement of faith-based organisations or faith based religious leaders and any other volunteers to participate to provide volunteerism who have skills or knowledge in that regard. It might be spiritual counselling, it might be economic support, and it might be a mitigation of stigma. Community involvement is one of the key factors in tracing patients lost to HIV care. And also, different associations have a role model for tracing lost to follow-up. Capacity building and awareness creation for religious leaders are the key issues that need attention to solve the problem. Same-day ART initiation counselling capacity building for case managers, data clerks, and adherence supports is required, including service delivery point awareness creation on the issue*."

5.4.1.1.1.8 Sub-theme 8: Reasons of why SDI-ART patients lost to follow- up care

The reasons for patients dropping out of HIV care and treatment after starting same-day ART included the emergence of the COVID-19 pandemic, gaps in healthcare providers' counselling skills, fear of stigma and discrimination, and religious-related issues. The primary cause of lost follow-up was COVID-19, which influenced patients' behaviour and led them to avoid accessing services under normal circumstances, resulting in follow-up lapses of three months or more. Similarly, healthcare providers' skill gaps can be linked

to perceived barriers and behavioural control, which reflects their perceived ease or difficulty in performing counselling effectively due to a lack of knowledge. A supporting systematic review from Iran on the prevalence and reasons for loss of follow-up in HIV clinics identified distance to healthcare facilities, lack of support and supervision, poor attitudes towards ART benefits, and poverty as the most common reasons for LTFU (SeyedAlinaghi, Karimi, Barzegary, Pashaei, Zargari, Kianzad, MohsseniPour, Mirzapour, Fakhfouri, Mehraeen & Dadras 2022:180).

Three (3) participants were quoted saying:

> **Ph1:** "*The other challenge is that patients started on same-day ART are not being monitored due to COVID-19. They are being scheduled for three months, and this results in lost to follow-up and adherence issues*."
>
> **Ph2:** *"… I believe there are gaps in counselling, and I believe that a multi-month dispensing system has resulted in a loss of follow-up. Due to the COVID-19 pandemic, all newly ART-initiated patients are seen for a minimum of three months*."
>
> **Ph3:** *"…The first one is factors associated with the counsellor's skill and knowledge. The other factors include distance from the healthcare facility, stigma, and disclosure issues. Religious-related issues are the most common cause of being lost to follow-up that needs intervention*."

5.4.1.2 Theme 2: Processes followed to enrol newly diagnosed HIV+ patients

This theme explored using the health belief model to understand perceived barriers by physicians regarding same-day ART initiation and its impact on viral suppression and retention in HIV care. They addressed the enrolment procedures implemented by various healthcare providers, the referral processes facilitating linkage to HIV care and treatment, the counselling protocols for newly diagnosed HIV-positive individuals, and various initiatives related to same-day ART and the eligibility criteria for its initiation. The five sub-themes within this theme were discussed, as follows:

5.4.1.2.2 Sub-themes

5.4.1.2.2.1 Sub-theme 2: Analogous processes are followed at different facilities by various HCPs for SDI-ART

Physicians identified perceived barriers in the processes followed by various healthcare providers for same-day ART (SDI-ART) initiation. These barriers include delays in referring HIV-positive patients to ART clinics promptly upon diagnosis, which can result in delayed ART initiation. Participants highlighted instances where patients are not linked to care immediately after diagnosis, leading to missed opportunities for timely treatment initiation. Additionally, the study found that the enrolment of HIV-positive patients into SDI-ART can be influenced by social norms and behavioural constraints among healthcare providers. These factors may affect their willingness or ability to adopt efficient practices for linking patients to same-day ART, thereby affecting overall treatment outcomes and adherence to HIV care protocols. Addressing these perceived barriers is crucial for optimising SDI-ART initiation processes and improving patient outcomes in HIV care settings.

Three (3) participants were quoted saying:

> **Ph1:** "*We have two types of ART linkage based on the source of HIV-positive patients. The first one is from community testing, gather-all-all testing, or facility testing. Facility-based HIV testing is one of the service delivery units that conducts risk assessment testing. In each service delivery unit, we screen all patients to identify those who are at risk for HIV. Those who are identified as positive for HIV will be retested, counselled, and finally linked to an ART clinic. In facility-based linkage, there is another option: family-based index testing. There is an index of contacts for HIV-positive patients that will be offered and tested. The second linkage is from the community. There are local implementing partners for HIV testing in the region, like the Oromia Development Association. They conduct testing at the community level and link with our hospital. Once they are linked with our hospital, we will accept the linkage referral form, retest the patient, and initiate ART based on the wishes of the patient. So, these are the two types of linkage. Then, the provider gave advice again about the result of the test with the patient after retesting*."

Ph2: "*Enrolment of new patients is based on the point of care where HIV-positive patients are identified. An HIV-positive patient could be from the OPD, VCT, ICT, or another service delivery point. If a positive patient was from ICT patients that have been through index case testing (ICT), it may be easier for enrolment and same-day ART initiation. Those patients identified by OPD may get pre-information about HIV and then be tested following the PITC procedure. Patients identified as positive in all service delivery units will be linked to ART through escorting by card room workers or nurses working in the unit. Once the patient is linked to ART, then the patient will be sent to the data room for basic information registration and identification of the repeat tester. Then, the patient will be transferred to the index case testing (ICT) room where new patients are initiated on same-day ART*."

Ph4: "*The clients are tested for HIV at different service delivery points. This may be at OPD, wards or other some other points may be deliver unit. So the first contact for HIV-positives is the healthcare provider at the testing point. Then, if the patient is identified as HIV-positive, the providers should escort them to an ART clinic. Then, at the ART clinic, enrollment in care and treatment will be started. That means all the positives in the facility, whether the client is new or known for HIV status, will be linked to the ART clinic. If the patient is new, we should consult and different forms should be completed, but before intuition, they should have to be retested. After the retesting, if the client is positive, we have to register on the pre-ART register.*"

5.4.1.2.2.2 Sub-theme 2: Processes for referral of newly diagnosed HIV+ clients to ART clinics and hospitals

Physicians identified perceived barriers in the process of referring newly diagnosed HIV-positive clients to ART clinics and hospitals. The referral system, also known as linkage to care, plays a crucial role in the HIV care and treatment continuum. It represents a fundamental practice implemented across healthcare facilities to ensure timely access to ART services for individuals diagnosed with HIV. Referral and linkage of clients must get the necessary attention to maximise the number of identified HIV-infected people that are connected to available treatment and care services within the country (Federal Ministry of Health Ethiopia 2018:5). The consolidated national guideline explained that connections to care, prevention, and treatment services should be included in the

provision of effective referral to appropriate follow-up services as indicated, including treatment services and long-term prevention care.

Two (2) participants were quoted saying:

> **Ph1:** "*We have two types of ART linkage based on the source of HIV-positive patients. The first one is from community testing, gather-all all or facility testing. Facility-based HIV testing is one of the service delivery units that conduct risk assessment testing. In each service delivery unit, we screen all patients to identify those who are at risk for HIV. Those who are identified as positive for HIV will be retested, counselled, and finally linked to an ART clinic. In facility-based linkage, there is another option: family-based index testing. There is an index of contact for HIV-positive patients that will be offered and tested. The second linkage is from the community. There are local implementing partners for HIV testing in the region, like the Oromia Development Association. They conduct testing at the community level and link with our hospital. Once they are linked with our hospital, we will accept the linkage referral form, retest the patient, and initiate ART based on the wishes of the patient. So, these are the two types of linkage*."
>
> **Ph3**: "*There might be three options. One is from a different service delivery point within the healthcare facility. The second is from other healthcare facilities through referral. The third is from community HIV testing. The next step for any newly identified patients linked to our facility after the investigation and diagnosis will be to undertake verification testing and re-testing*."

5.4.1.2.2.3 Sub-theme 3: Further management after patient tested positive

Physicians perceived barriers in managing patients identified as HIV-positive and described several essential procedures for further case management, including linkage counselling, referral services, and same-day ART initiation within healthcare facilities. They emphasised the influence of subjective norms, which reflect societal attitudes towards behaviours aligned with established guidelines, standard operating procedures, and historical practices. These perceived barriers shape healthcare providers' approaches to managing HIV-positive cases and ensuring adherence to effective care protocols. Ethiopian National Consolidated Guidelines for comprehensive HIV prevention, care and treatment indicated that counselling sessions for HIV-positive patients will focus

on the meaning of an HIV-positive result, coping with the test result, providing information on immediate treatment initiation, the importance of medical care and treatment, disclosure and partner testing, prevention messages, positive living, and referral for treatment and care (Federal Ministry of Health Ethiopia 2018:10).

Four (4) participants were quoted saying:

> **Ph1:** *"…what it means to be positive. What will happen to the patient? What is the next plan? So the plan will be done based on the agreement of the patient and the provider. So, when there is agreement reached between the patient and the provider, the provide plan to initiate ART. Once they are agreed, the patient will start on ART. So there are three options for ART initiation. The first one is rapid ART initiation which is either within one day or one week or the other one is ART initiation after one week*."
>
> **Ph2:** "*The ART physician will assess the patient if there are gaps in clinical screening at OPD or incomplete clinical testing at OPD. It will be completed by the ART physician in the ART clinic, and then the ART physician will decide whether the patient has to be initiated on same-day ART or not. Only two things will keep the doctor from starting a patient on same-day ART. One is a clinical scenario and the other is patient preparedness. Patient readiness refers to physiological readiness, which is almost as important as the patient's consent to begin same-day ART. The second one is a clinical scenario such as TB, cryptococcal meningitis, and other comorbidity that should be resolved before ART that is considered a contraindication for same-day ART initiation*."
>
> **Ph3:** *"… the verification testing is provided by the healthcare provider nurse. After the verification test confirms positive, the patient will be linked to a case manager or adherence supporter for one-on-one counselling to cope with the adherence status of the client. The patient will then be linked to the data room once more to confirm whether they are new or returning as known positive. Then, any appropriate information will be recorded by the data clerk and returned to the ART provider or physician. If the client is eligible for same-day initiations, that means there are no opportunistic infections (OI) or other contraindications and if the patient is willing, same-day ART will be initiated*."

Ph4: "*The clients are tested for HIV at different service delivery points. This may be at OPD, wards or other some other points may be delivery unit. So the first contact for HIV-positive is the healthcare providers at the testing point. Then, if the patient is identified as HIV-positive, the providers should escort them to link to ART clinic. Then at ART clinic enrolment o care and treatment will be started*."

5.4.1.2.2.4 Sub-theme 4: Explanation of different types of initiatives related to SDI-ART

Participants suggested that implementing initiatives to encourage patients to seek HIV care and treatment would boost the uptake of same-day ART initiation services. They highlighted perceived barriers by physicians, such as transportation coverage for patients with limited resources and ensuring follow-up of newly initiated ART patients by a single care provider for at least six months. According to the participants, addressing these perceived barriers by physicians is crucial, leveraging local resources and diverse healthcare leadership. A study supports this finding conducted in Uganda on the role of incentives in achieving and maintaining viral suppression found that those who received incentives said the incentives motivated their ART adherence, while others expressed intrinsic motivation for adherence (Camlin, Marson, Ndyabakira, Getahun, Emperador, Byamukama, Kwarisiima, Thirumurthy, & Chamie 2022:5). According to Camlin et al (2022:5) incentives helped to alleviate the burdens of transportation costs, lost income due to time away from work, and food insecurity.

Two (2) participants were quoted saying:

Ph3: *"… if transportation costs are covered for certain patients, especially for the first 6 months, it enables clients to be stable in their economy until they adhere to medication. I think it is better to link patients started on same-day ART with their providers, at least for the first 6 months to create trust between the client and providers. This also enables patients to know more about the disease and decreases lost to follow-up as well*."

Ph4: "*For me, same-day ART initiation is preferred because early initiation reduces some lost to follow-up on pre-ART and reduces clients with advanced HIV diseases. I think HIV disease should be considered like any other disease for which the patient's sake medication should be started on the date of diagnosis. In fact,*

same-day ART initiation is preferred and should be continued with client support and follow-up by one provider at least for the first year. Additionally, transportation fees or incentives can encourage clients to stay in care until they get more detailed information about the disease."

5.4.1.2.2.5 Sub-theme 5: Eligible criteria versus un-qualifying criteria for newly diagnosed HIV+ patients for enrolment in SDI-ART

Not all HIV-positive patients may receive same-day ART initiation, as per the study participants' insights. They explained that certain criteria exist, such as managing serious opportunistic infections before starting ART. This reflects perceived barriers by physicians, who may vary in their confidence levels regarding initiating ART in the presence of opportunistic infections and their adherence to national ART guidelines. For instance, while some healthcare providers may initiate ART concurrently with tuberculosis treatment, others may be more cautious, influenced by their individual perceptions and interpretations of clinical guidelines. These perceived barriers by physicians underscore the complexity and variability in decision-making regarding same-day ART initiation among HIV-positive patients.

The Ethiopian National Consolidated Guidelines for comprehensive HIV prevention, care, and treatment indicated criteria for same-day ART initiation, which indicated the eligibility of every HIV-positive person for ART irrespective of their WHO clinical staging and/or CD4 count, and that the ideal time for ART initiation depends on the clinical condition and readiness of the client (Ministry of Health Ethiopia 2018: viii).

Two (2) participants were quoted saying:

Ph1: "*The eligibility criteria are being HIV reactive, and if they are reactive, they will be linked to ART once they are identified as HIV-positive. There are also contraindications to rapid or same-day ART initiation. The first one is for patients with a pulmonary TB diagnosis. Any form of TB diagnosis is a contraindication for same-day ART initiation. The other one is cryptococcal meningitis, which is another contraindication for same-day ART initiation*."

Ph3: "*Any other clinical features of the client make them eligible for same-day ART initiation. That means the absence of opportunistic infection, patients' mental*

illness status, and volunteerism. If there are no other contraindications but the patient is not ready and willing to start same-day ART, we will postpone the ART initiation for another time."

5.4.1.3 Theme 3: Observed outcomes and results related to SDI-ART

ART physicians' perceived benefits of same-day ART initiation, including the advantages and disadvantages, are explained below in five sub-themes. They emphasised the benefits of adherence, the potential drawbacks for critically ill patients, and the advantages of immediate access to ARV information. These discussions are organised under five sub-themes, as follows:

5.4.1.3.3 Sub-themes

5.4.1.3.3.1 Sub-theme 1: Disadvantages of SDI-ART patients as opposed to those who are not initiated

Physicians perceived several benefits and drawbacks of same-day ART initiation compared to delayed initiation. Commonly noted drawbacks included the need to manage critically ill patients with opportunistic infections on the first day, complications from COVID-19 multi-month dispensing without adequate adherence, and increased rates of lost to follow-up, particularly for patients living far from healthcare facilities. These challenges can be understood through the lens of perceived behavioural control, where patients have limited control over these factors. Critical illness and distance from healthcare facilities were the primary disadvantages perceived by physicians, leading to higher rates of follow-up losses.

Two (2) participants were quoted saying:

Ph2: *"…in other ways, starting same-day ART is disadvantageous for critically ill patients. For such patients, it is better to first provide medical care. …the second is a clinical scenario such as TB, cryptococcal meningitis, and other comorbidities that should be resolved before ART that are considered contraindications for same-day ART initiation. The other challenge is that patients started on same-day ART are not being monitored due to COVID-19. They are being scheduled for three months, and this results in lost to follow-up and adherence issues*."

Ph3: "*Different factors are associated with these lost to follow-up. The first one is factors associated with the counsellor's skill and knowledge. The other factors include distance from the healthcare facility, stigma, and disclosure issues*."

5.4.1.3.3.2 Sub-theme 2: Benefits of SDI-ART and its importance for adherence to treatment

Physicians perceived benefits of same-day ART initiation, particularly its positive impact on adherence to treatment. They agreed that initiating ART on the same-day leads to rapid viral load suppression, reduces mortality and morbidity due to HIV, and improves the quality of life for patients. Physicians also perceived benefits such as increased patient retention in HIV care and a reduction in the lost to follow-up due to discrimination, stigma, or patient negligence. Same-day ART initiation benefits patients and communities by altering perceptions and attitudes towards HIV disease and treatment, enhancing service uptake, and contributing to health-related sustainable development goals. Overall, physicians indicated that same-day ART initiation improves quality of life while increasing productivity, benefiting the family, community, and country as a whole.

A meta-analysis conducted on the benefits of same-day ART concurs with this study and indicates that rapid ART can reduce HIV-related morbidity and mortality and inhibit HIV viral load based on several randomised observational studies and trials (Mateo-Urdiales, Johnson, Smith, Nachega & Eshun-Wilson 2019:18). Similar observational studies concur with this finding conducted in eight (8) other countries (China, Ethiopia, Malawi, South Africa, Swaziland, Thailand, the United Kingdom, and the United States of America) on the benefits of same-day ART initiations, showing that increased treatment costs while decreasing lost to follow-up are observed (Ford et al 2018:19).

Three (3) participants were quoted saying:

Ph1: "*One, it supports rapid viral load suppression. The other one is to reduce morbidity and mortality due to HIV. Overall, it improves the quality of life for the patient. It increases the retention of the patient in HIV care. … they internalise and understand the benefit of ART that will support them to stay in HIV care. Extensive adherence counselling is used to help patients understand what being HIV-positive means, what action is required, and what to do*."

Ph2: "*Same-day ART initiation has two bold benefits. One is the clinical benefit that patients who are started on same-day ART will experience in terms of viral load suppression. We conduct viral load testing at least once a year for all patients, unless there is a there is a high viral load, so that the patient will not suffer from opportunistic infections. The second benefit of same-day ART initiation is that it can reduce losses due to discrimination, stigma, or negligence by the patient, who may not come back. If the patient is initiated on same-day ART, they may gain improvement, and the patient will come again due to the improvement brought by the same-day ART initiation. Furthermore, same-day ART initiation is possible so that HIV can be treated as any other disease without delay to avoid morbidity and mortality due to the disease."*

Ph3: *"…well, both same-day ART initiation and viral load suppression are interlinked with each other. The same-day ART initiation will build immunity and enable the viral load to be suppressed. Viral load suppression will improve quality of life, while productivity will also increase. It might be beneficial for the family, the community, and the country as a whole if there was same-day ART initiation for patients. It has its own benefits for the family, the community, and the individual levels. Viral suppression is also linked to early detection and follow-up mechanisms*."

5.4.1.3.3.3 Sub-theme 3: The advantages of SDI-ART which outweighs the disadvantages leading to minimal lost to care of patients was described

Physicians perceived the benefits of same-day ART initiation in reducing missed appointments by mitigating discrimination and stigma through clinical improvement. They explained this advantage in two ways: first, reduced stigma and discrimination from families and friends, which can be understood through behavioural intention; and second, the patient's improvement from opportunistic infections, leading them to believe they are cured of HIV, which acts as a cue to action, influencing the patient's internal decision.

This finding concurred with a study conducted in Thailand on the impact of timing of antiretroviral therapy initiation on retention in care, viral load suppression, and mortality in people living with HIV individuals in the early ART initiation, which revealed that

retention in HIV care at 12 months is 88.8% compared to the other, which is 80.5% (Eamsakulrat & Kiertiburanakul 2022:4). Contrary to this, a study in Northern Ethiopia on the effectiveness of same-day antiretroviral therapy initiation in HIV retention outcomes noted that same-day ART initiators had nearly a threefold higher risk of LTFU from HIV care than non-same-day ART initiated patients (Ahmed, Demissie, Worku, Gugsa & Berhane 2020:8).

One (1) participant was quoted saying:

> **Ph2:** *"… the second benefit of same-day ART initiation is that it can reduce lost due to discrimination, stigma, or negligence of the patient who may not come back. If the patient is initiated on same-day ART, they may gain improvement and the patient will come again due to the improvement, brought by the same-day ART initiation*."

5.4.1.3.3.4 Sub-theme 4: Access to HIV and ART information benefit explained

Physicians perceived benefits of providing information on HIV services prior to HIV testing as critical for same-day ART initiation. This pre-information helps patients perceive the benefits of HIV testing and same-day ART initiation, thereby preparing them for the outcome and process. As a result, patients' quality of life improves because they begin treatment on the same-day. This finding concurs with a study conducted at Debre Markos Referral Hospital, Northwest Ethiopia, on health-related quality of life and associated factors among HIV-positive individuals on antiretroviral therapy, which states that getting counselling is one of the aspects related to health's quality of life for HIV patients (Koster, Taddele, Aderaw & Tefera 2022:245).

One (1) participant was quoted saying:

> **Ph2:** *"… it is very advantageous to start the patient on ART without any problems since linkage is through escorting. Patients also have access to pre-testing information at the service delivery unit, which makes the patient adhere to same-day ART initiation*."

5.4.1.3.3.5 Sub-theme 5: Suggested interventions of the disadvantages for SDI-ART to critically ill patients

Physicians perceived benefits in not starting same-day ART for critically ill patients with opportunistic infections. They suggested treating these infections first to improve adherence to ARV medications. This approach reflects behavioural intention, motivates healthcare providers to address urgent issues before initiating ART, and aligns with the patient's perceived benefit of reducing pill burden. Findings of this study are consistent with another study conducted in Gojjam Zone, Northwest Ethiopia, on the facilitators and barriers of same-day antiretroviral therapy initiation, which found that opportunistic infection was one of the factors that delayed same-day ART initiation (Moges et al 2020b:8).

One (1) participant was quoted saying:

> **Ph2:** *"… starting same-day ART is disadvantageous for critically ill patients. For such patients, it is better to first provide medical care. Those patients identified as positive by OPD withdraw and refuse ART initiation because they have not accepted the result. This is practically the challenge that we are facing in same-day ART initiation. For example, a patient who comes with diarrhoea and is identified as HIV-positive and who is initiated on same-day ART will have an appointment after three months. The diarrhoea will improve after same-day ART initiation, but the patient assumes that he or she is recovering from the illness. Therefore, the patient will miss the second appointment because the illness may not be critical. This may not be true for patients with advanced HIV cases, where they fear a serious illness, and they will come back for that reason*."

5.4.1.4 Theme 4: Medical interventions to assist and care for HIV+ patients

Physicians perceived benefits in providing comprehensive medical interventions for HIV-positive patients, recognising that HIV is a chronic infection requiring lifelong monitoring. The central components of this approach include antiretroviral therapy, supportive counselling, and other interventions. Under the five sub-themes discussed below, physicians highlighted the perceived benefits of various interventions, such as counselling, adherence support, strategies for tracking lost to follow-up patients, and patient monitoring mechanisms. The following sections discuss these five sub-themes in detail.

5.4.1.4.4 Sub-themes

5.4.1.4.4.1 Sub-theme 1: Multiple in-depth counselling sessions with various HCP suggested prior SDI-ART

Physicians perceived benefits in providing multiple in-depth counselling sessions with different healthcare providers to convince patients prior to initiating same-day ART. However, participants noted the absence of a uniform approach or clear guiding principles for counseling. According to the theory of reasoned action, social norms and constraints suggest that there should be standards guiding specific behaviors. Therefore, this behavioural action must be guided by a well-defined strategy to enhance its effectiveness. A qualitative study conducted in South Africa supports this finding on patient perspectives on the quality of the same-day antiretroviral therapy initiation process, where the findings indicated high satisfaction with counselling that improved patient–clinic relations, improved counselling, and reduced waiting times (Scott, Maskew, Fong, Olson, Brennan, Fox, Vezi, Ehrenkranz & Rosen 2021:183). Scott et al (2021:183) specifically, recommended having a nurse who is dedicated to handling new patients for improvement of the quality of the counselling and provider–patient relations.

Three (3) participants were quoted saying:

> **Ph1:** *"… the first one is counselling with different providers. There are experienced providers with different adherence case managers as well as with ART physicians. So extensive counselling is the first one*."
>
> **Ph2:** *"…primarily, physicians and nurses are responsible for same-day ART initiation counselling. However, case managers and adherence support are providers who also provide counselling on same-day ART initiation*."
>
> **Ph3:** "*All healthcare provider teams have their own roles and responsibilities. The first one is that healthcare providers should give strong pre-test and post-test counselling at the service delivery point before linkage to an ART clinic*."

5.4.1.4.4.2 Sub-theme 2: Description of counselling content and benefits thereof sessions (importance of adherence and support)

Physicians perceived benefits in the counselling approach for same-day ART, emphasising its role in supporting patients' behavioural changes, addressing drug addiction issues, and preparing patients for initiating ART on the same-day. Participants also highlighted the role of case managers and adherence support in providing one-on-one counselling. The study conducted in Uganda on a quality of HIV counselling services offered in public health facilities concurs with this finding showed that the content of counselling information included sharing of information on topics such as the "window period," partner involvement, HIV transmission risk to the infant, the benefits of knowing one's HIV status, disclosure to the partner, explanation of the delivery process to the client, family planning, seeking past history of ARV use, explaining the ARV regimen and its role, adherence to treatment, making the next appointment with the client, and checking to see if the client had understood all the information (Kyobutungi, Ssebagereka, Begumisa, Muhumuza & Matovu 2022:127).

Three (3) participants were quoted saying:

> **Ph1**: *"… counselling the patients on the benefit of same-day ART and the benefit of starting ART on the same-day even if they do not accept ART on the same-day. For those not willing to start same-day ART, give time and counselling and supporting those when they will start ART with continuous preparation."*
>
> **Ph3:** "*During that time, adherence preparation and counselling services will be given to the patients through case managers and adherence supports. One-to-one counselling and phone counselling were also provided on some important issues, like adherence and substance use with ART drugs. Social behavioural change tools might be leaflets or vouchers, also provided for those who can read them*."
>
> **Ph4**: "*Patients will be subject to long-term adherence counselling, if the patient is ready to start ART and fulfils the criteria for same-day ART initiation, we can initiate as early as possible.*"

5.4.1.4.4.3 Sub-theme 3: Description of various strategies used to track HIV+ patients lost to care

Physicians perceived benefits in the current strategies used to track HIV-positive patients who have dropped out of care, as described by study participants. Healthcare facilities

are employing methods such as phone calls, home visits, and collaboration with community partners involved in HIV prevention, care, and treatment. Participants emphasised the need for these strategies to be effective and efficient in tracing patients lost from HIV care and treatment, advocating for a standardised operating procedure to guide these efforts. A concurring study conducted on the challenges of tracing patients on antiretroviral therapy who were lost from care in South Africa found that the healthcare facility telephone was used to contact all individuals who missed appointments, followed by home-to-home visits (Etoori, Wringe, Renju, Kabudula, Gomez-Olive & Reniers 2020:4).

One (1) participant was quoted saying:

> **Ph1:** *"… the first one is via phone call. This will be done using information available on the appointment calendar and smart care database. So, we know when the patients are appointed, and if they miss their appointment date, we will contact them by phone. Through phone calls, we advise them to come back for care and treatment. If the patients are lost or if they have no contact address, we will go to their home. A home visit is done if the address, like Kebele or the house number, is written and known. The third one is that if we can't reach them, we contact partners, like in our case, the Oromia Development Association, a voluntary group that will go home. We will give them the address, paying attention to confidentiality. So, we will track them back using this mechanism*."

5.4.1.4.4.4 Sub-theme 4: M&E mechanisms used to evaluate treatment outcomes for SDI-ART were explained

The perceived benefits of same-day ART initiation aim to enhance patients' quality of life by ensuring successful retention in HIV care and treatment through continuous monitoring. Participants explained that while there are monitoring mechanisms for patients who have started on ART, there is currently no specific system in place for monitoring those initiating ART on the same-day alone. They noted existing methods such as registers, databases, monthly reports, assigned case managers, and adherence support for monitoring patients newly started on ART. However, there is a gap as these methods do not specifically track outcomes like survival, mortality rates, or viral suppression for patients starting ART on the same-day. A different approach than the current study finding, conducted in rural Lesotho on providing ART refill through

community health workers versus clinic-based follow-up after home-based same-day ART initiation, used community mobilisation through the involvement of all community councils and village chiefs, in collaboration with the responsible volunteer community health workers, for the tracing of participants lost from care in collaboration with the existing tracing staff (Amstutz, Lejone, Khesa, Kopo, Kao, Muhairwe, Bresser, Räber, Klimkait, Battegay & Glass 2021:6).

Three (3) participants were quoted saying:

> **Ph1:** "*… we have a mechanism, but the monitoring system has a problem. There is a registration used for patients started on same-day ART. That is the ART registration. There is also a smart care database in addition to the ART register that will tell us who started on the same-day ART initiation. We can get six-month and one-year survival data from the register and smart care database. However, these two systems will tell us patients who lost from care as a whole, not only those started on the same-day ART initiation. No, we have no separate same-day ART initiated patient monitoring mechanism in place*."
>
> **Ph3**: *"… we have assigned the case manager, adherence supporter, and mother's support group. They are responsible for individual levels to follow patients started on same-day ART at any time through telephone regarding their appointment date, ART initiation, and viral load monitoring. At facility level in the morning, health education is provided by an adherence supporter and a case manager regarding ART drug use and viral load monitoring. One-to-one counselling and phone counselling were also provided on some important issue, like adherence and substance use with ART drugs. Social behavioural change tools might be leaflets or vouchers, also provided for those who can read them*."
>
> **Ph4**: *"… to be honest, we do not practice in separate rooms for same-day ART clients. I mean separate for only same-day ART monitoring. We are monitoring all clients, but there is a mechanism in place if we need to monitor the clients who started on the same-day. It is monitored through a monthly reporting system*."

5.4.1.4.4.5 Sub-theme 5: Description of monthly and or consistent monitoring of patients on SDI-ART

Physicians perceived benefits in the close follow-up and monitoring required for same-day ART initiation, as suggested and described by participants. They emphasised that patient follow-up and monitoring should involve one-on-one counselling, phone calls, and connections with case managers, adherence supporters, and mother support group teams for patients receiving same-day ART. The findings indicate that there is no consistent practice in place for monitoring patients who have started on same-day ART, which is supported by guiding strategies and a patient-centred monitoring mechanism. This finding supported the President's Emergency Plan for AIDS Relief (2021:11) recommendation, which suggests that person-centred monitoring and care is best practice in serving both the needs of the patient and the goals of reaching epidemic control programmes more broadly.

One (1) participant was quoted saying:

> **Ph3**: *"… we have assigned the case manager, adherence supporter, and mother's support group. They are responsible for individual levels to follow patients started on same-day ART at any time through telephone regarding their appointment date, ART initiation, and viral load monitoring. At facility level in the morning, health education is provided by an adherence supporter and a case manager regarding ART drug use and viral load monitoring. One-to-one counselling and phone counselling were also provided on some important issues, like adherence and substance use with ART drugs. Social behavioural change tools might be leaflets or vouchers, also provided for those who can read them*."

5.4.1.5 Theme 5: Suggestions of strategies for ART initiation, follow-up, tracing and monitoring

As a new initiative, same-day ART initiation serves as a cue to action for physicians, prompting the exploration of various new strategies. Since its introduction, physicians have proposed multiple approaches to enhance adherence, reduce lost to follow-up, and improve patient medical record management at the healthcare facility level. The sub-themes under this theme were extensively discussed as follows:

5.4.1.5.5 Sub-theme

5.4.1.5.5.1 Sub-theme 1: SDI-ART suggests with emphasis on the importance of ART adherence

This study highlighted cues to action by physicians, emphasising the importance of fostering a conducive environment for client-provider relations and adherence support, as suggested by participants. One participant suggested assigning a focal person to newly initiated same-day ART to facilitate one-on-one counselling, build patient confidence, and enhance adherence. Physicians perceived the benefits of this approach as effectively reducing missed follow-ups and improving ART adherence, thereby contributing to viral suppression. The study finding interpretation is supported by a study conducted in Uganda on the influence of intensified adherence counselling on viral load suppression in people receiving antiretroviral therapy at a health centre, which indicated that those with better adherence have a lower viral load and thus better health (Pius, Josephine, Erick, Winifred, Rita, Silverjoseph, Lucy, & Novatus 2021:4). Findings showed that close follow-up and support by the assigned healthcare provider are expected to adhere the patients to medication.

Two (2) participants were quoted saying:

> **Ph2:** *"… I prefer this method of follow-up for newly initiated patients on same-day ART. A focal person for the newly initiated person should be assigned, especially when there is a high viral load. For example, in a hospital where we are detecting an average of 20 new cases per month on average, both clients have to have their own focal person who follows adherence status, viral load determination, and clinical issues, whether there is an opportunistic infection or not. If the patient is on clinical treatment, whether the patient is being followed in an appropriate way or not. The patient should be followed by the focal person who is responsible for the client's clinical care. This is the way I suggest starting for newly initiated same-day ART. One person or care giver should be responsible for following up for six months consecutively for one patient*."
>
> **Ph3**: "*The first is to create a conducive environment for client-provider relations. The counselling sessions and the service areas should not be crowded, especially*

with new clients. New clients are not stable. They are afraid of anyone they see in the area. The area itself is isolated, so it might be a factor. If we shorten the waiting time and appropriate the client-provider relationship, same-day ART initiation and viral load suppression are one, and the other is exemplary."

5.4.1.5.5.2 Sub-theme 2: Implementation of reductions in lost to follow-up care strategies

Physicians emphasised cues to action, proposing strategies to reduce lost to follow-up. These included ensuring comprehensive documentation of patients' addresses upon entry, assigning a dedicated centre or focal person/nurse for follow-up of newly started same-day ART patients, appointing case managers, and providing support group counselling tailored to individuals' experiences with ARV treatment. The findings concur with the study, which was conducted in rural South Africa, on the challenges in tracking patients on antiretroviral therapy who are late for clinic appointments. The study revealed that improvements to recording systems, data quality issues, incompleteness, inadequate training of HCWs responsible for recording information, and inadequate auditing procedures are all different priorities that need to be improved for tracing patients who have been lost from care (Etoori et al 2020:7).

Three (3) participants were quoted saying:

Ph1: "…*the preferred method to reduce lost to follow-up problems is to document all the necessary demographic information of the patient. The documentation of more than one phone number provides more options for contacting the patient or someone who they disclosed is the preferred one. Once you have an address, you can communicate by phone or physically at home*."

Ph2: "*To ensure adherence, newly diagnosed patients should be followed every month by the clinician who initiated the patient for at least the first six months. Until the first viral load is determined, which will tell us whether the patient is adherent to medication*."

Ph3: "*The adherence case manager and other support groups explain their life, not their knowledge. Same-day initiation will be strong and good. Additionally, if transportation costs are covered for certain patients, especially for the first 6*

months, it enables clients to be stable in their economy until they adhere to medication. To trace lost to follow, I think special tracking documentation and follow-up are required. Viral load, same-day ART initiation, and lost to follow monitoring system should be developed and implemented at the facility level."

5.4.1.5.5.3 Sub-theme 3: Patients' cards management strategies employed and benefits thereof explained

Cues to Action by physicians included strategies suggested for same-day ART initiation, such as tracing lost to follow-up through comprehensive address documentation starting at the medical record unit. Physicians believed that proper documentation of patients' contact information would aid healthcare facilities in tracking down lost patients for HIV follow-up. Currently, Ethiopian healthcare facilities do not require patient identification for registering any healthcare service, hindering efforts to trace chronic diseases like HIV. Participants highlighted the need for digital identification or unique patient identifiers in the future to capture comprehensive patient information, beginning with the medical record unit. As such, a study conducted in rural South Africa on the difficulties of tracking patients on antiretroviral therapy who are late for clinic appointments revealed that, despite large investments initiated in establishing electronic medical records, the system still exists haphazardly even though it is not fully integrated into medical practise (Etoori et al 2020:7).

One (1) participant was quoted saying:

Ph2: "*Currently, according to HMIS, for any newly diagnosed patient, individual patient's cards are being stored at the central card room. For close follow-up of any newly diagnosed patient, their cards should be put in a separate area in the ART clinic or card room. This reduces the number of lost cards to be followed and increases patient service satisfaction, which reduces lost cards*."

5.4.2 Nurses

In Ethiopian hospitals and health centres, nurses serve as key providers in ART clinics, acting as focal points and team leaders. This study, involving seven nurses in in-depth interviews, revealed three overarching themes related to same-day antiretroviral therapy initiation and its association with viral suppression and patient retention in HIV care:

perceived barriers, perceived benefits, and cues to action. Nurses identified barriers such as patient readiness issues, increased workload, and infrastructure challenges that impede effective implementation. Conversely, they recognised benefits including improved adherence, enhanced patient engagement, and immediate health improvements with same-day initiation. Cues to action highlighted the need for standardised protocols, ongoing training for healthcare providers, and comprehensive patient education to optimise same-day ART initiation and retention in HIV care. In this category, three themes and 20 sub-themes were used to explain nurses' experiences with same-day antiretroviral therapy. Table 5.4 addresses themes and sub-themes reflecting nurses's experiences with same-day antiretroviral therapy initiation and its association with viral suppression and retention in HIV care.

Table 5.4: Nurse's experiences on same-day ART initiation

Themes	Sub-themes
Theme 1: Experiences of nurses related to SDI-ART	1.1 Paradoxical experiences related to the SDI-ART processes were followed, and benefits and disadvantages thereof were described 1.2 Intervention, M&E and referral of SDI-ART patients explained 1.3 Conditions related to the patient's readiness for SDI-ART were outlined 1.4 Challenges experienced by patients subjected to SDI-ART were described 1.5 Reasons why patients who were on SDI-ARTs are lost to follow-up care 1.6 Relationship challenges between HCP and HIV+ patients were mentioned
Theme 2: Description of the interventions to assist newly diagnosed HIV+ patient	2.1 HCP responsible for counselling, content, and benefits thereof mentioned 2.2 Description of criteria for SDI-ART, benefits, and disadvantages 2.3 Description of activities embedded in the monitoring of treatment adherence and disease conditions 2.4 The roles of HCPs responsible for follow-up care of SDI-ART patients were described 2.5 Description of strategies used to overcome lost to follow-up care and tracing 2.6 Description of tracing and M&E mechanisms used by nurses 2.7 The process of how SDI-ART for HIV+ patients is managed is outlined
Theme 3: Suggestions to improve **the** care of SDI-ART patients	3.1 Increase staff who are working with HIV+ patients because the workload and difficulties of dealing with

	those patients are a lot 3.2 Infrastructure where HIV+ patients are consulted must be improved 3.3 Suggested improved procedures on how to deal with SDI-ART 3.4 SDI-ART is supported through modifications of processes suggested here and there 3.5 Strategies to encourage adherence to the treatment suggested 3.6 Improved counselling strategy and content suggested 3.7 Regular on the job capacity building is suggested for all HCPs dealing with SDI-ART

5.4.2.1. Theme 1: Experiences of nurses related to SDI-ART

Perceived barriers by nurses were discussed in relation to the same-day initiation of antiretroviral therapy (SDI-ART), encompassing both its benefits and disadvantages. Participants addressed interventions, monitoring and evaluation practices, and referrals for SDI-ART patients. They explored conditions influencing patient readiness for SDI-ART and the challenges encountered by patients starting treatment on the same-day. Additionally, the reasons for patients undergoing SDI-ART being lost to follow-up were examined, particularly focusing on relationship challenges between healthcare providers and HIV-positive patients, discussed through six sub-themes.

5.4.2.1.1 Sub-themes

5.4.2.1.1.1 Sub-theme 1: Paradoxical experiences related to the SDI-ART process followed, and benefits and disadvantages thereof were described

Perceived barriers by nurses were evident in participants' descriptions of inconsistencies in the patient enrollment process for same-day ART initiation. They observed variations in the approaches and methods used across healthcare facilities and noted discrepancies in the attitudes of healthcare providers within the same facilities. These attitudes, defined as the varying degrees to which individuals held favourable evaluations of the initiation process, significantly influenced implementation.

One (1) participant was quoted saying:

N1: "*Any new patients coming to our healthcare facility will first get a case manager*

or adherence counsellor. They will provide counselling and refer you to the data clerk room. This is to check whether the linked HIV-positive patient is new or not. Most of the time, patients who were lost or dropped were already known to be HIV-positive. That is why we first sent HIV-positive patients to the data clerk to avoid duplication. We will consider this person to be newly HIV-positive after data clerks confirm that there is no profile of the patient in the smart care database. After it is confirmed that the patient is newly HIV-positive, the patient will be referred for a verification HIV test (retesting) unit."

Another participant presented an enrolment approach where patients were first contacted by the data room, in contrast to the above.

One participant was quoted saying:

N2: "*Any new HIV-positive patient who arrives at our hospital must first contact the ART data room, where basic information is collected and sent to the ART nurse or physician. The retesting was conducted by ART nurses. Once the patient is confirmed HIV-positive, if the patient is free from any opportunistic infection, we will initiate same-day ART. If the patient has co-morbidity, the ART initiation will be extended for one to two weeks' period*."

Regarding same-day ART initiation's benefits, participants explained that same-day ART initiation has a dual benefit in HIV care and treatment. Participants also explained that same-day ART initiation has more advantages than disadvantages.

Two (2) participants were quoted saying:

N3: "*Same-day ART initiation has a dual benefit that reduces HIV transmission and minimises morbidity and mortality due to opportunistic infections. That means patients started on same-day ART will achieve viral suppression. Virological, suppression reduces HIV transmission, advancing the immune system that will keep the patient's health in that regard, morbidity and mortality will be reduced*."

N7: "*Starting ART drugs on the same-day has many advantages. If we let the patients go home without starting the drug, they may not even come back. This can also help the person not to infect their partner and to take care of their future relationships. We will tell them in advance that if they start and stop, it will expose*

them to the virus multiplying in their blood."

5.4.2.1.1.2 Sub-theme 2: Intervention, M&E and referral of SDI-ART patients explained

Perceived barriers by nurses were highlighted as participants described HIV-positive care interventions aimed at being patient-centred, with decision-making based on patient preferences following intensive counseling. Nurses also discussed challenges in implementing effective monitoring mechanisms, including reliance on the smart care database for viral suppression and ensuring continued patient engagement in care for those initiated on same-day ART. The study conducted in Greece on doctors' views and strategies to improve patients' adherence to medication revealed a positive relationship between patients and doctors, who encourage their patients in the decision-making process pertaining to their treatment, which concurs with this study (Yfantopoulos, Protopapa, Chantzaras & Yfantopoulos 2021:605).

Five (5) participants were quoted saying:

N1: *"Same-day ART initiation is patient-centred treatment in which the final decision is made by patients after counselling by different healthcare providers on medication..."*

N3: *"…if the patient wants to start at another healthcare facility, the patient will be counselled and referred for HIV care to his preferred healthcare facility. However, we currently do not have a separate viral load monitoring system for those initiated on same-day ART."*

N4: "…*ART nurse or physician completes intake form B, follow-up form, and other forms related to family HIV testing; medication and adherence counselling; and referrals to a case manager and adherence supporter for additional counselling and support*."

N5: "*We have a smart care database that shows in which month a positive was identified, ART was initiated, OI was initiated, and other cases. This is the mechanism by which we monitor our patients, but specific to same-day ART initiation, there is no mechanism for monitoring whether they are in care or not*."

N6: "*Case managers or adherence supporters begin same-day ART initiation counselling. The patient will then be referred to an ART nurse or physician, where same-day ART will be initiated*."

5.4.2.1.1.3 Sub-theme 3: Conditions related to the patient's readiness for SDI-ART were outlined

Perceived barriers by nurses include the criterion of patient readiness for same-day ART initiation, which hinges on the patient's perception of the benefits and severity associated with immediate treatment. Participants emphasised that while the decision to start same-day ART is typically patient-driven, exceptions occur in cases involving opportunistic infections where a physician's decision is required. This finding aligns with four randomised trials conducted in Haiti, Lesotho, South Africa, and Uganda, which emphasised the importance of not coercing individuals into starting ART immediately. Instead, patients should be fully informed about the benefits of starting ART regardless of their CD4 count, with the option to begin treatment on the same-day (Phanuphak, Seekaew & Phanuphak 2019:5).

One (1) participant was quoted saying:

N1: "*The first criteria is that patients are free from any opportunistic infection, while the second criteria is the patient's psychological readiness for ART initiation. If there is no disclosure issue or there is no fear of stigma, I will initiate same-day ART. Most patients accept same-day ART initiation unless there are disclosure issues and there is no justification for same-day ART. If the patient is positive for TB screening, I will postpone ART initiation until TB rolls out. If there is an opportunistic infection, including TB, I will first provide treatment for the opportunistic infection. Then, based on the progress made with intensive follow-up, I will initiate ART. Patients with a series of opportunistic infections will be admitted to the hospital, while those who are stable will be appointed for follow-up and ART initiation. For patients diagnosed with tuberculosis, the appointment will be for two weeks for ART initiation*."

5.4.2.1.1.4 Sub-theme 4: 1.4. Challenges experienced by patients subjected to SDI-ART were described

Perceived barriers by nurses were discussed regarding the challenges faced by patients undergoing SDI-ART. Among the seven nurses participating, four reported minimal difficulties with same-day ART initiation. However, one nurse highlighted a common challenge: patients presenting for unrelated medical issues who unexpectedly test positive for HIV. Such patients may struggle to accept their HIV-positive status due to their initial visit not being focused on HIV testing. This challenge is influenced by patients' attitudes towards HIV positivity and their understanding of the disease. Concurred findings from a study on problems in ART initiation and engaging in HIV care under treat all in Rwanda show that many people refused to accept their diagnosis and were unable to engage in treatment soon after being diagnosed due to overwhelming feelings (Ross, Ingabire, Umwiza, Gasana, Munyaneza, Murenzi, Nsanzimana, Remera, Akiyama, Anastos & Adedimeji 2021:5). According to Ross et al (2021:5), one participant said that he was given an appointment date to commence with treatment like others, but he did not honour the appointment because he was not mentally stable at that time. As a result, he spent two (2) months without attending the health centre.

One (1) participant quoted saying:

> **N4:** "*Patients who come for other medical problems and test HIV-positive do not accept same-day ART initiation. They prefer to conduct HIV testing at other sites to confirm that they are positive. They complain that I have no illness, and I fear the side effects of the drug more than the health benefits of the drug. For example, I have one patient who came to our healthcare facility for other services and tested HIV-positive. The patient told me he was not ready to start ART today, but rather he said he wanted to check it out at another healthcare facility. Another challenge is fear of stigma and discrimination in the facility before HIV status disclosure. Some patients prefer religious-related actions prior to starting ART (holy water and prey from church leaders)*."

5.4.2.1.1.5 Sub-theme 5: Reasons why patients who were on SDI-ARTs are lost to follow-up care

Nurses identified perceived barriers contributing to patients dropping out of HIV care after

initiating same-day ART. These include poor adherence due to inadequate counselling, reluctance to disclose HIV status to family members, leading to stigma and discrimination, and challenges related to religious beliefs impacting follow-up rates. This finding aligns with a study conducted in the East Gojjam Zone of northwest Ethiopia, which examined the barriers and facilitators of same-day antiretroviral therapy (ART) initiation among newly diagnosed HIV patients. The study revealed that patients were hesitant to start ART because healthcare workers informed them that ART only suppresses viral replication and does not cure HIV (Moges et al 2020a:1808). Additionally, there is a prevalent belief in the community that holy water is the best cure for HIV. Moreover, "religious leaders" frequently claim to have cured HIV through prayer on television and other media (Moges et al 2020a:1808).

Four (4) participants were quoted saying:

> **N1:** "*To my understanding, the most common reason patients are lost from HIV care is an adherence problem. I think this may be due to lack of understanding, language barriers, addiction to different drugs and alcohol, and those with no stable address. Religion-related issues are some of the most common reasons for lost to follow-up. Fear of stigma and discrimination, which is a disclosure issue for the partner, is another major reason for failure to follow-up.*"
>
> **N2:** "*Patients who are lost to follow-up are not limited to those who began ART on the same-day. I believe that patients who do not disclose their HIV status to their family are prone to stigma and discrimination. These are common causes of loss of follow-up. Patients who do not disclose their HIV When they see their neighbour or family member in the healthcare facility, they want to leave the facility even before taking their medication. There are no longer a significant number of missing people to follow-up on. We have case managers and adherence support workers working in the ART clinic who are responsible for patient support*."
>
> **N3:** "*I think most patients are lost from HIV care due to religious issues, while others consider themselves cured of HIV when they take medication for a long time with no signs and symptoms of disease. It is not only a problem for patients started on same-day ART; that lost to follow-up is a headache for our healthcare facility. I have mentioned that religious issues take the majority role, while counselling skills gaps and patients' satisfaction with service may contribute*

towards it."

N5: "*I believe those patients who began treatment on the same-day and were immediately lost are patients who already knew their HIV status at another healthcare facility and came in for a check-up and began ART. Retention in HIV care is affected by patients' perception of medication, religious issues, disclosure problems, and stigma. The main cause of lost to follow-up in our healthcare facility is a religious issue*."

5.4.2.1.1.6 Sub-theme 6: Relationship challenges between HCP and HIV+ patients were mentioned

Perceived barriers by nurses include explanations of the importance of a patient-centred relationship between healthcare providers and HIV-positive patients. Participants recommended that healthcare providers use clear language and easily understandable medical terms to ensure patients fully comprehend their care and management. They highlighted language barriers and the skills and behaviours of healthcare providers as critical factors that impact this relationship and may influence a patient's decision regarding same-day ART initiation. This finding could be supported by a study conducted in the East Gojjam Zone of Northwest Ethiopia on the barriers and facilitators of same-day antiretroviral therapy initiation among newly diagnosed HIV patients, which states that the reason for delayed ART initiation was not only a lack of knowledge about the importance of early drug initiation but also resistance to starting treatment due to a problem with healthcare providers and patient relationships (Moges et al 2020a:1812). A positive relationship between healthcare providers and their patients encourages patients to comply with treatment and adhere to it.

One (1) participant was quoted saying:

N7: "*Professionals should work on their relationship with the patient. Patients should also be able to ask questions legally rather than be forced to give blood in silence. When explaining, professionals should translate the existing technical terms and explain them properly in the language of the patient. Healthcare professionals and patients receiving ART are family, and this relationship should be kept strong. Some healthcare providers don't like to talk to patients. You have to accept that the patient's suffering is your own. One must attach the patient to*

oneself. There's a lot of carelessness among healthcare providers. They want to breathe on you and learn what happened, so the problem lies with the expert listening to this one properly and giving the necessary advice. There are also problems on the patient side, and there are times when the patient says, "Don't bother me, I'm swallowing," and they leave you there. The professional should accept the patient's problem as their own and help him, not remove it."

5.4.2.2. Theme 2: Description of the interventions to assist newly diagnosed HIV+ patient

Nurses, as participants in this study, emphasised perceived benefits in describing an intervention tailored for newly diagnosed HIV-positive patients to facilitate same-day ART initiation, enhance retention in HIV care, and improve follow-up tracing. This theme encompassed seven sub-themes, which were thoroughly discussed in detail.

5.4.2.2.2 Sub-themes

5.4.2.2.2.1 Sub-theme 1: HCP responsible for counselling, content and benefits thereof

The participants agreed that adherence supporters, case managers, nurses, and physicians are responsible for providing counselling for HIV patients enrolled in HIV care. Participants suggested that the contents of counselling should be based on the patient's knowledge of HIV and educational status. The study participants also mentioned that counselling has steps starting from the first day of HIV infection, and titles were also adjusted accordingly to enable patients to understand and benefit from the care and treatment. The researcher noted that counselling prior to same-day ART initiation plays a role in retention and should be given due attention.

In this regard, it is crucial to clearly identify the perceived benefits of counselling for patients provided by healthcare providers and the perceived barriers faced by patients. Appropriate actions should be taken to enhance patient retention in HIV care. These findings are supported by a systematic review conducted in Thailand, which assessed the optimisation of the test-and-treat strategy. The review highlighted that comprehensive counselling on the risks and benefits of ART during the first visit, along with a supportive

plan both inside and outside the clinic, plays an important role in ART acceptance (Phanuphak et al 2019:5).

Three (3) participants were quoted saying:

> **N2:** "*Adherence supporters, case managers, nurses, and physicians are responsible care providers that provide counselling for HIV patients on ART. Nurses and physicians provide counselling during ART initiation and adherence, and care managers provide counselling after ART is initiated. Case managers and adherence supporters provide counselling, taking themselves as an example*."
>
> **N4:** "*The first day of HIV-positive patient counselling is based on the patient's comprehension and educational status. All patients newly enrolled in HIV chronic care receive counselling on ARV drug adherence, side effects, feeding, and addition. There are various forms that invite us to counsel on various topics that will be filled out by nurses, physicians, case managers, and adherence supporters for all patients*."
>
> **N6:** "*Case managers or adherence supporters begin same-day ART initiation counselling. The patient will then be referred to an ART nurse or physician, where same-day ART will be initiated. I will inform the patient about the ART drug, including the fact that it is a lifelong medication that should be started today (the same-day), not interrupted, and should be taken regularly at the same time every day, as well as the drug's side effects and benefits*."

5.4.2.2.2.2 Sub-theme 2: Description of criteria for SDI-ART, benefits and disadvantages

Three out of seven participants described the criteria for same-day ART initiation, focusing on patients' readiness and healthcare providers' counselling skills. Drawing from their own experiences, the participants discussed both the benefits and disadvantages of same-day ART initiation. Healthcare providers highlighted the perceived benefits of same-day ART initiation, while patients expressed concerns about the severity of stigma and discrimination, leading to low retention in HIV care and poor viral suppression performance. A systematic review of same-day ART initiation for people living with HIV and showing tuberculosis symptoms in South Africa and Kenya found that patients were

eligible for same-day ART only if they had no TB symptoms (Burke, Rickman, Singh, Kalua, Labhardt, Hosseinipour, Wilkinson & MacPherson 2022:10).

Three (3) participants were quoted saying:

> **N4**: "... *if the patient has no opportunistic infection and volunteers to begin treatment, we will do so the same-day. However, some clients object to disclosure and ask for more time. The same-day ART start-up may be based on an individual counselling approach, which may necessitate more time for a single patient.*"
>
> **N5:** "*Same-day ART initiation has benefits for clients in viral suppression, and it is a prevention mechanism for HIV transmission. It also prevents opportunistic infections, which cause high morbidity and mortality in HIV patients. Indirectly, it supports patients' early testing of HIV for their families as they get benefit from the ART drug*."
>
> **N6:** "*Patients who come for other medical problems and test HIV-positive do not accept same-day ART initiation. They prefer to conduct HIV testing at other sites to confirm that they are positive. They complain that I have no illness, and I fear the side effects of the drug more than the health benefits of the drug. For example, I have one patient who came to our healthcare facility for other services and tested HIV-positive. The patient told me he was not ready to start ART today, but rather he said he wanted to check it out at another healthcare facility. Another challenge is fear of stigma and discrimination in the facility before HIV status disclosure. Some patients prefer religious-related actions prior to starting ART (holy water and prey from church leaders).*"

5.4.2.2.2.3 Sub-theme 3: Description of activities embedded in the monitoring of treatment adherence and disease condition

Participants perceived benefits in their efforts to enhance patient adherence to medication and monitor disease progression. One such perceived benefit was scheduling patient appointments to monitor ART drug side effects and adherence, tailored to each patient's clinical condition. Participants emphasised that diverse mechanisms were employed to track patient adherence and retention in care, highlighting the perceived benefits of these activities. They also noted that adherence monitoring should be guided by principles

rather than individual attitudes. The study revealed variability across healthcare facilities and providers in procedures for monitoring patients initiating same-day ART.

Two (2) participants were quoted saying:

> **N2:** "*We first provide medication for two weeks to roll out possible potential ARV drug side effects. We counsel the patients to return to the facility any time before their scheduled appointment date if they face potential or life-threatening side effects. I have one patient who developed herpes zoster after the initiation of same-day ART within 15 days of her appointment. Accordingly, she came back after two days when a smear test was done and she became TB positive. Immediately, she started anti-TB treatment without discontinuing ART. I have a close relationship with my clients."*
>
> **N5:** *"We have a smart care database that shows in which month a positive was identified, ART was initiated, OI was initiated, and other cases. This is the mechanism by which we monitor our patients, but specific to same-day ART initiation, there is no mechanism for monitoring whether they are in care or not. Most information regarding ART is known from smart care databases. We have a retention monitoring mechanism for all patients started on ART each month and a yearly retention. Patients with opportunistic infections will be initiated on ART after management of OI. In the case of TB, we can initiate ART after two weeks of anti-TB medication. Patients who decline will be tracked via cell phone until an initiated or final decision is made*."

5.4.2.2.2.4 Sub-theme 4: The roles of HCPs responsible for follow-up care of SDI-ART patients were described

Perceived benefits by nurses emphasise that healthcare provider counselling and adherence support are crucial for keeping patients engaged in HIV care. Participants in this study highlighted that counselling services are delivered by case managers, adherence supporters, and mother support groups.

Two (2) participants were quoted saying:

> **N1:** "*Yes, we have regularly assigned healthcare providers (case managers, adherence supporters, and a mother's support group) for lost follow-up tracing.*

Lost to follow-up information will be accessed from the data room, as will lost to follow-up registration. Most lost follow-ups were traced via phone. The data capture mechanism should be improved to minimise lost time to follow tracing. I think it is better to limit the distance of ART service because, currently, healthcare facilities are providing ART service everywhere. So patients in a given area should be served by nearby healthcare facilities to minimise lost follow-up and facilitate home-to-home tracing. Adherence supporters and care managers have no up-to-date information, and there are gaps in counselling and adherence support. So I think capacity building for healthcare providers, case managers, and adherence supporters will solve the problem."

N3: "*All healthcare providers counsel on ART drugs, feeding, alcohol use, and other addictions. Case managers and adherence supporters have special titles under which they provide health education for HIV-positive people in chronic HIV care. However, the first day of HIV-positive patient health education will be on medication, including drug side effects. Based on the patient's education status, we will provide counselling step-by-step for each follow-up*."

5.4.2.2.2.5 Sub-theme 5: Description of strategies used to overcome lost to follow-up care and tracing

Perceived benefits by nurses highlight the importance of patient-centred decision-making in addressing loss of follow-up during adherence counseling. Participants also recommended using patient identification cards starting from the medical record unit to capture accurate addresses, thereby minimising loss of follow-up and avoiding misinformation. This finding indicates that healthcare providers recognise the need for controlled behaviour based on the perception of performing the desired behaviour, though it is not yet fully supported by strategy. This insight aligns with PEPFAR's (2023:14) country and regional operational plan, which advocates for person-centred monitoring and care as the best practice for meeting patient needs and achieving epidemic control goals.

Two (2) participants were quoted saying:

N4: "W*orking on adherence and counselling for the availability of service at other facilities and ensuring drug side effects. Making patient-centred decisions for ART*

follow-up and initiation, as well as rewarding patients with medication adherence rates above 95%, charging a transportation fee for patients travelling from distant locations, and providing nutritional support to those who are unable to eat."

N5: "*To avoid or minimise lost to follow, I suggest having the identity of patients and a central database. Starting with the medical record unit, individual IDs should be used to create a patient folder that will allow us to have a complete patient address. A database that easily identifies people with known HIV status who are taking medication in other healthcare facilities. I suggest fingerprints to identify patients*."

5.4.2.2.2.6 Sub-theme 6: Description of tracing and M&E mechanisms used by nurses

Perceived benefits by nurses underscore the collaborative efforts with other healthcare providers in patient tracing and monitoring beyond clinical care. Participants described following and monitoring patients' progress through phone calls and a patient reminder system before appointment dates. They outlined the current monitoring system for tracing patients lost from HIV care and treatment, involving case managers and adherence supporters, although they did not specify their own roles in this process. A similar study from South Africa on healthcare providers' perspectives regarding the implementation of the same-day ART initiation policy revealed that insufficient guidance on the new policy was a critical barrier to a smooth transition (Onoya, Mokhele, Sineke, Mngoma, Moolla, Vujovic, Bor, Langa & Fox 2021a:4).

Two (2) participants were quoted saying:

N3: "*The current lost to follow-up tracing mechanisms is primarily via phone. We call patients who missed their appointment starting from day 1 of the missed appointment. Those who have been missing from care for more than a month will be tracked down by phone and will be home-to-home visited based on location*."

N4: "*Data on patients who have dropped out of HIV care is retrieved from the ART data room and shared with case managers and adherence supporters. Not only lost, but we also started tracing patients who missed their appointments starting from 2 days. There are two registers available at the case manager's room for lost*

to follow-up and missed appointments. There is also the situation of communicating with or reminding patients prior to their appointment date. We also have community-level partners supporting us in tracing patients lost to HIV care. The problem is that patients give us the wrong address or an un-functional telephone number."

5.4.2.2.2.7 Sub-theme 7: 2.7. The process of how SDI-ART for HIV+ patients is managed is outlined

Perceived benefits by nurses highlight the process of initiating same-day ART for HIV+ patients in healthcare facilities. Participants underscored that same-day ART initiation starts with confirming the patient's HIV positivity and promptly initiating ART within 24 hours. They also noted the crucial role played by the data clerk, nurses, and ART physician in gathering and managing pertinent patient information throughout this process. In pilot studies on immediate ART initiation and restart in the United States of America, the process followed in HIV-positive management for same-day ART initiation retesting is important because the preliminary result is more likely to be a false positive, and clinicians should probably wait for a positive confirmatory test result before starting same-day ART (Bacon 2021:2).

Three (3) participants were quoted saying:

N1: "… a*fter it is confirmed that the patient is newly HIV-positive, the patient will be sent for a verification HIV test (retesting) unit. If the patient is retested and found to be HIV-positive, I will be sent back to the data clerk room to register patients on Smart Care and have the data clerks fill out intake A and B forms, including detailed patient addresses. After registration is completed, the patient will be returned to the ART provider for counselling and same-day ART initiation. The ART provider will assess for other opportunistic information, and a laboratory will be sent if there are any signs and symptoms, and a base line CD4 will be sent. Based on clinical and physical assessment, the patient will be counselled for same-day ART initiation and, if accepted, will be initiated on a same-day ART service. If not eligible for same-day ART initiation, the patient will be appointed for another day for ART initiation*."

N3: "*Same-day ART is the initiation of therapy of patients within 24 hours of being*

HIV-positive after intensive counselling on adherence. It is based on many factors. It may be based on laboratory evaluation, clinical examination, and patient willingness."

N4: "*After intake form A and other documentation required in the data clerk room are completed, the patient will be returned to the ART nurse or physician. ART nurse or physician completes intake form B, follow-up form, and other forms related to family HIV testing; medication and adherence counselling; and referrals to the case manager and adherence supporter for additional counselling and support*."

5.4.2.3. Theme 3: Suggestions to improve the care of SDI-ART patients

Cue to action by nurse's prompts suggestions for enhancing same-day ART initiation, focusing on modifications to workforce procedures, adherence counselling strategies, and capacity building. These suggestions were extensively discussed under the following seven sub-themes:

5.4.2.3.3 Sub-themes

5.4.2.3.3.1 Sub-theme 1: Increase staff who are working with HIV+ patients because the workload and difficulties to dealing with those patients are a lot

Cue to action by the nurse's highlights concerns about an imbalance between patient load and healthcare provider capacity at the facility. Participants pointed out that the high workload hinders the establishment of robust patient-provider relationships. This perceived barrier leads to gaps in counselling and building rapport with patients. A related study conducted in Addis Ababa, Ethiopia, on the quality of antiretroviral therapy services at selected public hospitals found that the availability of trained and committed staff is crucial for quality improvement (Tiruneh & Woldeyohannes 2022:136). According to Tiruneh and Woldeyohannes, having multiple patients in one room compromised confidentiality, privacy, and service quality for HIV-positive patients. Workload can significantly influence service quality, and an attentive, patient-friendly approach is essential for stabilising HIV patients.

One (1) participant was quoted saying:

> **N1:** "*To be honest, as a healthcare provider, due to high client load, there is no culture starting with proper self-introduction with patients. Providers should also not share their own contact number because there is a bad culture in which some patients disturb your life. For example, I will not give my phone address to a few people for my own reasons. Some patients call you at a time that is not feasible for support, which disturbs me. There was a time when somebody for whom I provided care called me to get him at night. We have a healthcare facility phone number that is accessible to all during working hours that everybody can use during working hours."*

5.4.2.3.3.2 Sub-theme 2: Infrastructure where HIV+ patients are consulted must be improved

Cue to action by nurses underscores the need for improvements in the infrastructure used to consult HIV+ patients. Participants highlighted various aspects such as the proximity of healthcare facilities offering ART services, the workload of service delivery units, and capacity building for healthcare providers, case managers, and adherence supporters. Additionally, they emphasised that enhancing infrastructure would enhance privacy and confidentiality in delivering ART services. Similar evidence from a meta-analysis study on starting ART on the same-day in Haiti, Lesotho, South Africa, and Uganda increased the optimisation of treatment in the test-and-treat strategy: it revealed that the current health infrastructure for ART services is related to specialties and staff numbers, clinic days and times, laboratory turnaround time and availability of point-of-care laboratory testing, and sources of health insurance to cover costs associated with ART and laboratory testing (Phanuphak et al 2019:5).

Two (2) participants were quoted saying:

> **N1**: *"… I think it is better to limit the distance of ART service because, currently, healthcare facilities are providing ART service everywhere. I think healthcare providers who initiate same-day ART or ART initiation for new HIV-positives should be exempted from work load."*

> **N6:** *"To assist patients in starting same-day ART, healthcare providers, case managers, and adherence supporters must receive regular capacity building and*

refresher training. Counselling is the foundation of same-day ART initiation. Clients and providers must maintain their privacy and confidentiality."

5.4.2.3.3.3 Sub-theme 3: Suggested improved procedures on how to deal with SDI-ART

Cue to action by nurses involves a new initiative aimed at enhancing ART service uptake through same-day ART initiation. Participants have identified opportunities for improvement in this new service provision. They have proposed a procedure to enhance care during same-day ART initiation. One suggestion is to revise follow-up procedures to facilitate patients' familiarity with their care providers. Another recommendation proposes assigning a consistent healthcare provider to new HIV-positive patients until they stabilise and disclose their status to family members. This approach aims to advance adherence counselling, strengthen patient-provider relationships, and promote patient retention in HIV care.

Four (4) participants were quoted saying:

N2: "*Same-day ART initiation is better, and if continued as same-day ART initiation with some modification, I prefer it. Patients started on same-day ART should be followed by one clinician (a nurse or physician) at least for one year. This will improve relationships between patients and providers, which supports patient retention in HIV care*."

N3: "*I have some ideas that differ from the current same-day initiation approach. It is preferable to establish a system in which patients started on ART should be followed by only one unit of the ART clinic. That means only one room or one clinician should be responsible for same-day ART initiation. This will enable the facility to closely follow-up on the patients started on same-day ART*."

N4: "*I am happy with same-day ART initiation because of its benefits. I hope we can have patient options available. For better same-day ART initiation to meet the intended goal, we have to modify our approach and follow-up system. I think it is better if an ART nurse or physician is assigned for same-day ART initiation only for each facility for close follow-up."*

N5: "*I recommend starting ART the same-day with one-stop shopping at an ART clinic. Patients who have just begun ART should be followed by an ART physician for at least a year to establish a strong client-provider relationship that will reduce lost to follow-up, morbidity, and mortality*."

5.4.2.3.3.4 Sub-theme 4: SDI-ART is supported though modifications of processes suggested here and there

Cue to action by nurses involves proposing a modification to the process of same-day ART initiation. Participants suggested that patients initiating same-day ART should be assigned to a single clinician (either a nurse or physician) for at least one year. This adjustment aims to improve patients' retention in HIV care by cultivating a strong and consistent relationship between healthcare providers and patients. A similar finding from South Africa, focusing on patients' perspectives of the quality of the same-day antiretroviral therapy initiation process, indicated that having a dedicated nurse for new HIV-positive patients could improve the quality of counselling and provider-patient relations, suggesting the implementation of such improvements (Scott et al 2021:183).

Two (2) participants were quoted saying:

N2: "*Same-day ART initiation is better, and if continued as same-day ART initiation with some modification, I prefer it. Patients started on same-day ART should be followed by one clinician (a nurse or physician) at least for one year. This will improve relationships between patients and providers, which supports patient retention in HIV care."*

N3: *"I have some ideas that differ from the current same-day initiation approach. It is preferable to establish a system in which patients started on ART should be followed by only one unit of the ART clinic. That means only one room or one clinician should be responsible for same-day ART initiation. This will enable the facility to closely follow-up on the patients started on same-day ART."*

5.4.2.3.3.5 Sub-theme 5: Strategies to encourage adherence to the treatment suggested

Cue to action by nurses involves proposing several strategies to enhance adherence to

treatment. Participants suggested collaborating with religious institutions, boosting the capacity of adherence supporters, and implementing a fingerprint identification mechanism in healthcare facilities. They stressed the importance of addressing perceived barriers among healthcare providers, particularly those related to religious beliefs, and overcoming limitations in the capacity of adherence supporters and case managers. They also recommended leveraging advanced technology to improve treatment adherence during same-day ART initiation and retention in care. These findings align with a study conducted in the United States of America on Health Information Technology (HIT) interventions and engagement in HIV care, which revealed that the utilisation of health information and technology may not only enhance engagement in clinical outcomes and HIV care but also potentially reduce costs associated with HIV care and treatment (Shade, Marseille, Kirby, Chakravarty, Steward, Koester, Cajina & Myers 2021:10). This underscores the significance of capacity building and technological advancement in promoting patient retention in HIV care.

Two (2) participants were quoted saying:

> **N3:** "*I think working on adherence is what we can do to reduce lost to follow-up because some patients are off their phones when we call them from the facility. I misplaced my intention and have no idea what should be done in the future. I have told you that the most common issues of lost to follow-up are religious and disclosure issues. Maybe it is better if it is done at a religious institution and capacity building for adherence supporters and case managers*."

> **N5:** "*To avoid or minimise lost to follow, I suggest having the identity of patients and a central database. Starting with the medical record unit, individual IDs should be used to create a patient folder that will allow us to have a complete patient address. A database that easily identifies people with known HIV status who are taking medication in other healthcare facilities. I suggest fingerprints to identify patients*."

5.4.2.3.3.6 Sub-theme 6: Improved counselling strategy and content suggested

Cue to action by nurses involves outlining essential steps for patients starting on same-day ART to maintain medication adherence. Participants emphasised the importance of determining the approach and content of counseling. They highlighted that counselling

should encompass topics such as family disclosure and HIV testing for family members. Additionally, participants stressed the need for adherence counselling to include discussions with religious leaders and capacity building for adherence supporters and case managers. They emphasised that addressing perceived barriers among patients and religious leaders requires comprehensive counselling discussions and capacity building to ensure effective adherence support. The study that was conducted in Uganda on the quality of HIV counselling services offered in public health facilities concurs with this finding and shows that the content of counselling information included disclosure to the partner, explanation of the delivery process to the client, family planning, seeking past history of ARV use, explaining the ARV regimen and its role, adherence to treatment, making the next appointment with the client, and checking to see if the client had understood all the information (Kyobutungi et al 2022:127).

Three (3) participants were quoted saying:

> **N2:** "*In addition to ARV drug and medication adherence counselling, we also counsel on family member HIV testing. Because disclosure to a family member has also benefited the patient in retaining HIV care and treatment*."
>
> **N3:** *"…intensive counselling and community-level awareness creation, including capacity building for religious leaders, are required to tackle this problem. I have told you that the most common issues of lost to follow-up are religious and disclosure issues. Maybe it is better if it is done at a religious institution and capacity building for adherence supporters and case managers."*
>
> **N7:** "*I think churches should encourage this to be taught through their structures. Capacity building for religious leaders is also required to avoid this problem*."

5.4.2.3.3.7 Sub-theme 7: Regular on the job capacity building is suggested for all HCPs dealing with SDI-ART

Cue to action by nurses prompts the implementation of regular capacity building sessions to ensure healthcare providers are informed about current practices in same-day ART initiation. Participants underscored the significance of adherence supporters and case managers having access to up-to-date information. This access enables them to effectively counsel patients starting on same-day ART and foster retention in care through

positive relationships with healthcare providers. However, the findings highlight a gap in consistent capacity building for case managers and adherence supporters, despite their pivotal role in supporting new HIV-positive patients. A similar study from South Africa on healthcare providers' perspectives regarding the implementation of same-day ART initiation policy identified human resource shortages as a critical barrier to care services and perceived difficulties in implementing the same-day ART initiation policy (Onoya et al 2021a:5).

One (1) participant was quoted saying:

> **N6:** "*There is a lack of up-to-date information for adherence supporters and care managers, as well as gaps in counselling and adherence support. So I believe that increasing the capacity of healthcare providers, case managers, and adherence supporters will help to solve the problem. To assist patients in starting same-day ART, healthcare providers, case managers, and adherence supporters must receive regular capacity-building and refresher training.*"

5.4.3 Adherence supporters

Adherence supporters, selected from HIV-positive individuals receiving ART, are crucial to the healthcare team, providing essential HIV prevention, care, and treatment services. Five adherence supporters from two healthcare facilities participated in this study, which explored their experiences with same-day antiretroviral therapy initiation and its association with viral suppression and patient retention in HIV care through four themes and 23 sub-themes, summarised using health belief components that included perceived barriers, perceived benefits, and cues to action. Participants face significant challenges, including limited resources, persistent stigma, high workloads, inconsistent training, patient reluctance to disclose HIV status, and poor communication with healthcare providers. Despite these barriers, adherence supporters perceive substantial benefits in their work, such as improved patient outcomes, stronger patient-provider relationships, and personal empowerment. To address these issues, they emphasise the need for regular capacity-building sessions, collaboration with religious institutions to combat stigma, and implementing advanced technologies like fingerprint identification to improve adherence tracking and patient retention (refer to Table 5.5).

Table 5.5: Adherence Supporter's experiences on same-day ART initiation

Themes	Sub-themes
Theme 1: Experiences of adherence supporters related to the care provision of SDI-ART initiated patients	1.1 Benefits for SDI-ART are described 1.2 Description of outcomes for SDI-ART as experienced by adherence supporters 1.3 Explanation of treatment outcomes for patients who were subjected to SDI-ART 1.4 Description of the importance of SDI-ART 1.5 Role's clarifications of different HCPs on SDI-ART activities explained 1.6 Socio-economic status pointed out as problematic SDI-ART for patients
Theme 2: Challenges related to patients subjected to SDI-ARTs	2.1 Description of the reasons behind patients lost to HIV care after SDI-ARTs, which is viewed as problematic 2.2 Problems related to the disclosure of HIV+ status and other related personal information 2.3 Reasons associated with reluctance to start SDI-ARTs by HIV+ patients and lost to follow-up care 2.4 Lack of consistent communication strategies leads to lost to follow- up on HIV care 2.5 Consequences of a lack of adherence to ART experienced by HIV+ patients
Theme 3: Appropriate interventions for HIV+ patients	3.1 Description of HCP appropriate to take care of HIV+ patients 3.2 Description of health education content provided to HIV+ patients 3.3 Eligibility criteria for starting on SDI-ART and the benefits thereof were explained 3.4 Strategies used for tracing lost patients after SDI-ART were explained 3.5 The first point of contact at health facility and the reasons thereof are mentioned 3.6 M&E strategies after SDI-ART were described 3.7 Description of socio-economic status issues to be addressed prior to SDI-ART 3.8 Enrolment processes for SDI-ART and follow-up strategies in various facilities are outlined
Theme 4: Recommendations to enhance SDI-ART uptake	4.1 Health education content is suggested for SDI-ARTs 4.2 Development of strategies for tracing lost to follow-up 4.3 SDI-ART is recommended for newly diagnosed HIV+ patients 4.4 Role of people and organisations to implement an awareness campaign for adherence to treatment

5.4.3.1 Theme 1: Experiences of adherence supporters related to the care provision of SDI-ART initiated patients

Participants' experiences with care provision for same-day ART initiated patients are discussed in six sub-themes, focusing on perceived barriers. These include challenges in realising the benefits of same-day ART, achieving positive outcomes, and understanding the importance of SDI-ART. They also highlight perceived barriers in the roles of healthcare providers during same-day ART initiation and the impact of patients' socioeconomic status on the success of same-day ART. This theme is presented in six sub-themes as follows:

5.4.3.1.1 Sub-themes

5.4.3.1.1.1 Sub-theme 1: Benefits for SDI-ART are described

Participants highlighted perceived barriers despite recognising the significant role of same-day ART initiation in suppressing viral loads and improving patients' quality of life. They noted challenges in consistently achieving these benefits, which are crucial for preventing HIV transmission. These barriers may include issues related to patient adherence, resource limitations, and the need for ongoing support and education to sustain these positive outcomes. This finding is supported by a meta-analysis conducted in Haiti, Lesotho, South Africa, and Uganda, which showed that starting ART on the same-day increased the likelihood of initiating ART within 90 days by 35%, achieving viral suppression at 12 months by 17%, and improving retention in care by 11% (Phanuphak et al 2019:4). Additionally, same-day ART initiation was associated with a non-significant trend towards lower mortality, according to Phanuphak et al (2019:4).

Three (3) participants were quoted saying:

> **AS1:** "*The viral load of the clients who started same-day ART is very good; most of them are not detectable (TND). Their health condition is very good. They can do any work. As they have good health, they live a healthy and peaceful life with their family. They can live like other people. They have no health problems, and retention is also good."*

> **AS2:** *"The main benefit of starting ART on the same-day of a positive result is that*

it protects our immunity from being affected by the virus. This will help them reduce the load of viruses in their bodies and increase the number of their CD4. We illustrate this with various local examples, such as soldier and enemy."

AS4: *"The person who began using the drug on the same-day may notice significant changes in their body. Their weight will increase. But if they start after their body has lost fat, it will decrease their appetite, and, as a result, they will be exposed to infection and other diseases easily. But those who started on the same-day will have good health."*

5.4.3.1.1.2 Sub-theme 2: Description of outcomes for SDI-ART as experienced by adherence supporters

Participants shared their experiences and stories regarding the outcomes of same-day ART initiation for HIV-positive patients. However, they encountered perceived barriers in reaching a consensus with patients about the importance and benefits of same-day ART initiation. These barriers include patient lack of awareness and resistance to immediate treatment, which hinder effective communication and agreement on the advantages of same-day ART. Similarly, a study conducted in Uganda on the role of treatment supporters in long-term antiretroviral therapy (ART) adherence found that treatment supporters played a crucial role in maintaining long-term ART adherence, particularly when patients felt fatigued or discouraged from taking their medication. In such instances, it was the treatment supporters who encouraged patients to continue with their treatment (Nakamanya, Mayanja, Muhumuza, Bukenya & Seeley 2019:473).

Two (2) participants were quoted saying:

AS3: *"We share our experience and the stories of the people who have had similar experiences. This builds a positive relationship between us. They appreciate it when I tell them my story and share my experience to teach them. They wonder as if there is no such condition. So it depends on the individual's approach. They may not get the regular ART nurse or physician they have seen in the last month."*

AS5: *"We usually give the patients highlights about ourselves and our experience, and then we get them ready to begin the medication. Because some people say and argue that they do the test and begin the medication exactly on the same-*

day."

5.4.3.1.1.3 Sub-theme 3: Explanation of treatment outcomes for patients who were subjected to SDI-ART

Participants explained the treatment outcomes for patients who underwent same-day ART initiation, emphasising its importance for viral load suppression and reducing HIV transmission. However, they faced perceived barriers such as patient reluctance, misinformation, and limited resources, which hinder the effectiveness of same-day ART initiation in achieving these crucial HIV prevention goals.

Three (3) participants were quoted saying:

> **AS1:** *"The viral load of the clients who started same-day ART is very good; most of them are not detectable (TND). Their health condition is very good. They can do any work. As they have good health, they live a healthy and peaceful life with their family. They can live like other people. They have no health problems, and retention is also good. Same-day ART has good viral suppression, but most patients started on same-day ART were lost from HIV care. I think due to COVID-19 and multi-month dispensing, they are losing."*

> **AS2**: *"… patient started ART on the same-day with support for viral suppression and to reduce transmission of HIV. However, most patients started on the same-day and may be lost with the first visit. This may be, I think, due to a repeat tester (known HIV-positive)."*

> **AS4:** *"I believe it is effective for viral suppression but is difficult to follow-up on or retain. because the majority of patients who were lost or dropped were those initiated on same-day ART. Sometimes repeat-tested patients come and start on same-day ART. This could be the reason for the failure to follow-up. To avoid duplication, we first sent HIV-positive patients to the data clerk."*

5.4.3.1.1.4 Sub-theme 4: Description of the importance of SDI-ART

Participants highlighted the importance of same-day ART, noting its role in achieving suppressed viral load results and protecting patients from opportunistic infections that can

lead to morbidity and mortality. Despite these benefits, they identified perceived barriers such as patient adherence challenges, healthcare system limitations, and the need for ongoing support to maximise the effectiveness of same-day ART in maintaining long-term health outcomes. A systematic review conducted on the benefits and risks of rapid initiation of antiretroviral therapy showed a high-to-moderate quality proof of benefit with respect to all clinical outcomes assessed, including evidence that ART started on the same-day increased viral suppression at 12 months and retention in care at 12 months (Ford et al 2018:20).

One (1) participant was quoted saying:

> **AS3**: *"Same-day ART initiation has many benefits for patients living with HIV. The patient started ART on the same-day and will have a suppressed viral load result. It also keeps them healthy before opportunistic infection, which may cause morbidity and mortality."*

5.4.3.1.1.5 Sub-theme 5: Role's clarifications of different HCPs on SDI-ART activities explained

Healthcare providers in ART clinics fulfil various roles collectively, as a team, and individually. According to study participants, adherence supporters and case managers, alongside physicians and nurses, rotate among different tasks, including providing counselling services, conducting family member testing, and tracing lost to follow-up patients. This dynamic schedule affects service provision, resulting in both positive and negative outcomes. Participants identified perceived barriers to this rotational approach, which negatively impact service delivery. They suggest that each service should have a designated focal person to ensure effectiveness and mitigate challenges arising from task rotation among healthcare providers.

One (1) participant was quoted saying:

> **AS3:** "*Any ART service provider, like a nurse, doctor, case manager, or adherence supporter, provides counselling. They do this through shifts or more counselling expected from case managers and adherence supporters. There is an index case testing (ICT) worker who focuses on the testing family of HIV-positive patients. Those who are appointed to search for the lost patients focus on the lost patients. All care providers cannot provide one service at a time; they focus on the duties of*

their room as assigned in that month or weeks."

5.4.3.1.1.6 Sub-theme 6: Socio-economic status pointed out as problematic SDI-ART for patients

Adherence supporters, as healthcare providers, possess a deep understanding of patients' circumstances. Participants emphasised the socio-economic challenges faced by patients, which significantly threaten their well-being. They highlighted that financial, food, and transportation assistance are crucial forms of support needed for patients starting same-day ART. While acknowledging the importance of same-day ART initiation, participants expressed concerns that it alone may not sufficiently transform HIV care and treatment to meet global targets. They identified perceived barriers to accessing basic necessities for patients with limited economic resources as influential factors affecting the uptake of same-day ART initiation services. This underscores the need for targeted interventions to address these barriers effectively.

This finding aligns with a study conducted in Tanzania that focused on enhancing the efficiency and implementation of cash transfers to improve antiretroviral therapy (ART) adherence. The study revealed that the use of incentives for ART treatment adherence has a positive impact on patient retention in HIV care (Packel, Njau, Fahey, Ramadhani, Dow, Jewell & McCoy 2020:10). Similarly, a study on same-day and rapid initiation of antiretroviral therapy among Taiwanese HIV patients found that ART is fully reimbursed by the National Health Insurance (NHI) (Hung et al 2022:10). Additionally, a study conducted in Bangladesh highlighted that nearly 50% of respondents cited financial constraints as barriers to treatment adherence, despite receiving free ART (Hossain, Hasan, Begum, Mohan, Verghis & Jahan 2022:7).

Two (2) participants were quoted saying:

> **AS2:** "*It is preferable to begin same-day ART with financial or food assistance for the patient. As they started it before the body deteriorated, I recommend that it continue*."

> **AS4:** "*I recommend that patients begin same-day ART with frequent follow-up, adherence assessment, and financial assistance for items such as food and transportation. The town health office and healthcare facility managers should*

facilitate this, because same-day ART initiation alone cannot make a change in HIV care and treatment."

5.4.3.2 Theme 2: Challenges related to patients subjected to SDI-ARTs

Participants outlined the perceived barriers associated with same-day ART initiation and its impact on viral suppression and patient retention in HIV care across several dimensions. One significant challenge highlighted was the lack of adequate follow-up among patients after initiating ART on the same-day, exacerbated by insufficient counseling. Additionally, participants discussed challenges related to patient disclosure, efforts to trace those lost to follow-up, and suggested strategies to overcome these obstacles. These sub-themes were elaborated upon in detail as follows:

5.4.3.2.2 Sub-themes

5.4.3.2.2.1 Sub-theme 1: Description of the reasons behind patients lost to HIV care after SDI-ARTs which is viewed as problematic

Participants identified religious issues as a primary perceived barrier to follow-up after same-day ART initiation. They described instances where patients who began same-day ART returned for HIV-positive confirmation tests and reported discontinuing medication, believing they had been cured. To address conflicts between medication adherence and religious practices, it is crucial to clearly understand and address patients' attitudes towards ARV drugs and religion during counselling sessions. Findings from a study conducted in the East Gojjam zone, northwest Ethiopia, support this observation, revealing that major reasons for delaying ART initiation among asymptomatic patients included beliefs that holy water and prayers by "religious leaders" could cure HIV (Moges et al 2020a:1808). Raising public awareness and building the capacity of religious leaders can help address missed follow-ups due to religious issues.

Two (2) participants were quoted saying:

AS1: "*Most of them relate to a religious issue. They try to recover with prayer. Some clients come to the hospital and request that we give them a letter indicating that they are HIV-positive, so that they can get prayer against the letter. As a result, some of them are disappointed with us due to our failure to get the requested letter.*

When they come back, we have identified that they are very sick and that their bodies are badly damaged by the virus. We try to counsel them that there is no relation between religion and the drug."

AS3: "*Most of them relate to religion (holy water). As well, there are some gaps in our service provision process. Sometimes we lose files of active patients and register them as if they have been lost to follow-up."*

5.4.3.2.2.2 Sub-theme 2: Problems related to the disclosure of HIV+ status and other related personal information

A significant perceived barrier associated with same-day ART initiation is the lack of disclosure to family members, resulting in missed follow-ups and improper medication adherence. Participants highlighted that patients frequently fear family conflict upon disclosing their HIV status. To address this challenge, participants discussed implementing systems to facilitate partner testing together, aiming to prevent marital discord and familial conflict. They emphasised the importance of documenting these strategies as references and sharing their experiences with other healthcare providers to support patients in disclosing their HIV status to family and friends effectively. A similar finding from a study in Kenya on social concerns related to HIV status disclosure and participation in the prevention of mother-to-child transmission of HIV among pregnant women revealed significant disclosure-related issues. These included fears of being blamed for the disease, losing respect from family or community, isolation or lack of support from family or friends, teasing or insults, separation or conflict with a partner, losing customers or a job, and intimate partner violence (Nordberg et al 2020:4).

One (1) participant was quoted saying:

AS1: "*If he has a wife and children, we support him to get his will so that his wife and children can be tested. If he has no wife, we facilitate the necessary conditions to test his partner. We need to save the lives of other people. We provide them with counselling services. Some positive people refuse to bring their partners. They say that she will fight them. But we told them to bring her, assuring her that we could convince her. In such a case, we facilitate testing them together, as new clients, and we test both of them as if they are new clients. Upon the completion of the test, we inform them of the test result together as if both of them are new*

clients. We use this method to test the family of positive clients who fear bringing their family or partner. And such a method avoids the conflict and destruction of families. If their test result is the same, we counsel them to start ART."

5.4.3.2.2.3 Sub-theme 3: Reasons associated with reluctance to start SDI-ARTs by HIV+ patients and lost to follow-up care

Participants explained perceived barriers contributing to delays in starting same-day ART and subsequent loss of follow-up. They emphasised that patients frequently decline same-day ART initiation due to perceived religious constraints, financial instability, and inadequate support from faith-based organisations and healthcare facilities. These barriers pose challenges to timely treatment initiation and retention in HIV care, underscoring the need for targeted interventions and comprehensive support systems to address patient concerns effectively. These findings are consistent with a study conducted in Mali, which identified several factors associated with the loss of follow-up for HIV-positive mothers and their infants in HIV care clinics. These factors included poor understanding of the indication and purpose of ART, drug side effects, poverty, family-related issues, stigma from family members, health system deficiencies, alternative treatment options, and negative attitudes from healthcare workers (Mpinganjira, Tchereni, Gunda, & Mwapasa 2020:3).

Three (3) participants were quoted saying:

AS1: "*Most of them relate the disease to a religious issue. … whereas some patients leave the drug saying, 'I have no sufficient food, I have no work, hence I cannot receive the drug. It is better for me to die instead of receiving the drug into my empty belly.' They said*."

AS2: "*Some people hesitate to start the ART drug on the same-day of a positive result by raising the former procedure. We educate them on the importance of reducing the viral load. Hence, most patients accept starting the drug on the same-day of the positive result*."

AS5: "*… they should not prescribe medication because of their religious beliefs. We are noticing this custom nowadays as a challenge for ART retention. They will be taught that they must not take medication, even if they believe in spiritual*

miracles."

5.4.3.2.2.4 Sub-theme 4: Lack of consistent communication strategies leads to lost to follow- up on HIV care

Participants highlighted inconsistent communication between the data room and the healthcare provider team as a significant perceived barrier contributing to the loss of follow-up. They noted that many patients are inaccurately reported as lost to follow-up due to deficiencies in updating the smart care database. This communication barrier within different service-providing units within the healthcare facility results in missed documentation and erroneous decisions, where patients actively receiving care are incorrectly categorised as lost. To mitigate these challenges, participants suggested developing strategies to streamline information flow between the ART data room and healthcare providers, ensuring accurate and timely patient tracking and management. Similar findings from a study in Tanzania revealed that poor communication practices, such as healthcare workers addressing patients with less courtesy, using harsh tones, and shouting at those who missed visits, contributed to the loss of follow-up among men living with HIV. Inappropriate communication was found to be unwelcoming and disappointing to clients (Mandawa & Mahiti 2022:511).

One (1) participant was quoted saying:

> **AS3:** "*Most of them relate the disease to religion (holy water). As well, there are some gaps in our service provision process. Sometimes we lose files of active patients and register them as if they have been lost to follow-up. This can be due to different reasons, i.e. when the card received is by other departments or when the relevant information is not registered on the file. A maximum of 25 patients were lost to follow-up per month, but our evidence shows that 70–80 patients were lost to follow-up per month. This is caused by the problem related to the lost files of the patients, not the patients themselves. I am telling you this information based on what I have witnessed in my career. The 20 patients lost may be due to different reasons. Some of them left the area or went to religious places. Thus, we cannot say that all these patients have been lost to follow-up."*

5.4.3.2.2.5 Sub-theme 5: Consequences of lack of adherence to ART experienced by HIV+ patients

Participants addressed perceived barriers related to HIV+ patients' non-adherence to ART. They highlighted that failure to adhere to ART medication results in opportunistic infections, which significantly impact morbidity and mortality rates, thereby affecting retention in HIV care and treatment. This underscores the critical need for effective adherence strategies and support systems to mitigate the consequences of non-adherence among patients receiving ART. A concurrent longitudinal retrospective cohort study from British Columbia, Canada, revealed that failure to adhere to ART over time results in drug resistance (Rocheleau, Brumme, Shoveller, Lima & Harrigan 2018:188).

Three (3) participants were quoted saying:

> **AS1**: *"…when they come back, we have identified that they are very sick and their bodies are badly damaged by the virus. We try to counsel them that there is no relation between religion and the drug."*
>
> **AS4:** *"Some patients ask about the consequences of not receiving the drug. Then we tell them the importance of starting the drug on the same-day and inform them about opportunistic infections if they fail to start the drug promptly."*
>
> **AS5:** *"I think same-day ART initiation has a negative impact on retention. Viral suppression is based on adherence, not same-day ART initiation. Whether started on the same-day or not, it is impossible to achieve viral suppression if the patient does not adhere to the ARV drug."*

5.4.3.3 Theme 3: Appropriate interventions for HIV+ patients

Participants emphasised the perceived benefits of appropriate interventions delivered by the healthcare provider team and other responsible entities. They outlined their roles as healthcare providers, including providing health education, highlighting the advantages of same-day ART initiation, and detailing strategies to be implemented. The specifics of these interventions were elaborated upon in seven sub-themes, each focusing on the perceived benefits for HIV-positive patients. These sub-themes were discussed in detail as follows:

5.4.3.3.3 Sub-themes

5.4.3.3.3.1 Sub-theme 1: Description of HCP appropriate to take care of HIV+ patients

Participants outlined appropriate interventions and care for HIV-positive patients, emphasising the perceived benefits of regular counselling to promote medication adherence. They suggested that healthcare providers should be assigned to monitor patients who have initiated same-day ART. Participants recognised the benefits of fostering close relationships, which can positively influence patients' attitudes towards HIV services and medication. They highlighted how building strong relationships enhances patients' perceptions of the benefits of same-day ART initiation. In a similar study on patient-provider communication, information, motivation, and behavioural skills among HIV-positive adults starting ART in Haiti, researchers identified low levels of participatory decision-making, limited provision of HIV-specific information, poor-quality adherence dialogue, and a lack of collaborative decision-making as key challenges in caring for HIV-positive patients (Ramaiya, Haight, Simoni, Chéry, Dervis, Genna, Dubé, JCalixte, Balan, Honoré & Puttkammer 2020:4).

Two (2) participants were quoted saying:

> **AS1:** *"… we provide him with the necessary counselling services based on the problem described to us; we assist him in resolving his emotions; we assist him in making the decision to begin receiving the drugs; we strive to convince him to begin the drug; and we never leave him without convincing him. After we have convinced him, we receive and host him as part of our family. We regularly call him to request adoption of the drug. We ask him about the problems he faced in connection with the drug… The care that we provide to them attracts them towards us. Our intimacy is very important to them. because it helps them consider us as their family..."*
>
> **AS4:** "*The assigned case manager or adherence supporter will monitor a patient who is starting same-day ART for the first time. When we check their appointment session, they benefit from starting the drug promptly. So we are responsible for monitoring patients' retention in HIV care*."

5.4.3.3.3.2 Sub-theme 2: Description of health education content provided to HIV+ patients

Counselling and health education are crucial to enhancing the quality of patient care for chronic conditions. Participants identified 13 key counselling topics relevant to HIV-positive patients. They noted that the perceived benefits of counselling are significant, but perceived susceptibility, especially among newly diagnosed HIV-positive patients, might hinder their ability to absorb all counselling messages in a single session. This can potentially compromise the quality of counseling. The findings suggest that the quality of counselling depends not only on the topics covered but also on patients' comprehension and emotional responses, highlighting the benefits of tailored and repeated sessions to ensure effective communication and understanding. This finding is consistent with a study conducted in Uganda on the quality of HIV counselling services, which revealed that a significant portion of respondents (66.2%) reported compromised confidentiality during counselling sessions, and 13.5% had not received training on HIV counselling (Kyobutungi et al 2022:125).

Two (2) participants were quoted saying:

> **AS4:** "*Our file comprises a list of 1–13 topics prepared to educate them. Based on the checklist, we identify their needs and provide them with the appropriate education. If they get sick, we inform them to come before the appointment date*."
>
> **AS5:** "*Counselling is also based on patients' understanding and feelings. We may not provide all the information about HIV in one day*."

5.4.3.3.3.3 Sub-theme 3: Eligibility criteria for starting on SDI-ART and the benefits thereof were explained

Participants highlighted the perceived benefits of basing eligibility criteria for same-day ART initiation on the counselling provided and the agreement reached by the patient, rather than imposing it through enforcement by healthcare providers. They emphasised that capacity building for adherence supporters and case managers is crucial. This training enables care providers to effectively identify eligible patients for same-day ART initiation, ensuring that the decision aligns with the patient's understanding and consent, thereby enhancing adherence and overall treatment outcomes.

Two (2) participants were quoted saying:

> **AS1:** "*First, we check the condition of the person to determine whether they are ready to receive the ART drug today. We provide him with the necessary counselling services based on the problem described to us; we assist him in resolving his emotions; we assist him in making the decision to begin receiving the drugs; we strive to convince him to begin the drug; and we never leave him without convincing him. After we have convinced him, we receive and host him as a part of our family. We regularly call him to request adoption to the drug."*
>
> **AS2:** "*Any HIV-positive patients who come to our facility will be eligible for same-day ART initiation. When we counsel them deeply, they don't refuse to start same-day ART. We provide counselling based on our experiences and tell them our stories. But we grant time for some patients who have insisted not to start on the same-day."*

5.4.3.3.3.4 Sub-theme 4: Strategies used for tracing lost patients after SDI-ART were explained

Participants explained that previously, lost to follow-up tracing was facilitated with the assistance of the international organisation ICAP at Columbia University. They suggested several strategies to address lost to follow-up patients initiated on same-day ART, emphasising the perceived benefits of these approaches. These strategies included regular capacity building for case managers and adherence support, providing vehicle support for out-of-town patients during tracing, and ensuring that the data room corrects technical errors that misreport patients in care as lost. Additionally, participants highlighted the need to address perceived barriers to adherence counselling and emphasised the perceived benefits of support from non-governmental organisations in reducing lost to follow-up and increasing retention in HIV care. Similarly, findings from a study on missed appointments by antiretroviral therapy patients revealed several gaps from the perspective of professional nurses, including not scheduling appointments based on patient availability, poor patient-provider relationships, staff shortages, a lack of guidelines and counselling rooms, and long waiting times at healthcare facilities. Addressing these gaps is essential to improving service quality and minimising lost follow-up (Lowane & Lebese 2022:5).

Two (2) participants were quoted saying:

> **AS3:** "*We had been searching for lost patients as a campaign during the time when we were working with ICAP at Columbia University. The organisation has been providing us with vehicles to find lost patients in rural areas. But currently, there is no such support. As well, it is better to have a tea programme for discussion. This helps people get to know each other and exchange information. Furthermore, it is better to have education and discussion sessions. All of these activities require financial support. I would appreciate it if someone could help us with this in order to reduce the lost to follow-up. Additionally, capacity building is required for case managers and adherence support. We are working with the training we received before 6 years*."

> **AS4:** "… w*e carry out home-to-home searches once a week. As well, we also use health extension workers in their respective kebele and voluntarily so as to search for and get them. The health extension workers also support and bring them back if they know the lost patient, or they tell us their address so that we can search for and get the patient. We also find them through associations and by phone. Sometimes we receive reports that patients have reported being lost while receiving the drug. Then, we check on the computer of the respective health facility to see if we have gotten them. As for this case, we disputed with the data clerk many times. So the issue of lost to follow-up also has a technical problem that should be resolved*."

5.4.3.3.3.5 Sub-theme 5: The first point of contact at health facility and reasons thereof are mentioned

According to two participants, case managers and adherence supporters serve as the initial points of contact for HIV-positive patients at healthcare facilities. Participants highlighted the perceived benefits of this approach, noting that it allows for the provision of counselling services and stabilises patients before initiating care and treatment. This initial contact can positively impact the patient's continuity of care by building trust and ensuring they are well-informed and prepared for their treatment journey. However, they also acknowledged that the initial point of contact can have both positive and negative impacts on patient continuity of care. A study conducted in Iran on HIV-positive patients'

experiences of receiving healthcare services revealed that patients often fear inappropriate behaviour exhibited by healthcare personnel, which may result in a lack of patient referrals, self-medication, referral to traditional therapists, or concealing their disease at the time of referral (Asadi, Imani-Nasab, Garavand, Hasoumi, Kia, Haghi & Setoodehzadeh 2018:154).

Two (2) participants were quoted saying:

> **AS1:** *"The person who knows his HIV status is positive for the first time should contact the concerned case manager. Then our department will check his/her condition to measure his or her CD4 status. However, it is currently recommended that HIV-positive people begin ART as soon as possible. First of all, we provide the necessary counselling service for the HIV-positive person, then we obtain a card for him and take him to the concerned doctor or nurse."*

> **AS3:** *"The new patient will first contact the adherence support/case manager. We need to receive them warmly, provide the patient card, and ask for their needs so that they will not be bored and leave the hospital."*

Contrary to this, two participants highlighted that the nurse is the first point of contact for an HIV-positive patient in a healthcare facility. Participants reasoned that before receiving HIV care and treatment counselling, patients should first receive restorative services.

Two (2) participants were quoted saying:

> **AS2:** *"First, the HIV-positive person should come to our room and contact a health professional or nurse. When all the required information is identified, the patient is linked to the ART nurse, and he will be retested by the nurse. Then the patient will be sent to the case manager's room for adherence counselling. This is the flow of new patient enrolments in our healthcare facility."*

> **AS4:** *"First and foremost, the HIV-positive individual should come to our room and make contact with a health professional or nurse. He contacts the nurse first because all documents are in order, and he will be retested by the nurse. If the result is positive, he will be directed to the date clerk room, where the date clerk will provide him with the necessary information. He will then be directed to the case manager room or an Adriane supporter to receive counselling. The newly*

diagnosed HIV patient will be escorted to a private counselling room."

5.4.3.3.3.6 Sub-theme 6: M&E strategies after SDI-ART were described

Participants emphasised the perceived benefits of monitoring and evaluating same-day ART initiation, which include accurately capturing patients' phone numbers and effectively tracking those who are lost from HIV care. They also highlighted the importance of enhancing performance monitoring through a multidisciplinary team with a designated ART focal person. This approach is crucial in strengthening the behavioural intention to monitor patients initiated on same-day ART, thereby facilitating their retention in care. Moreover, in cases where patients become lost to follow-up, this structured approach enables easier tracing of these individuals, ensuring continuity of care and treatment effectiveness.

One (1) participant was quoted saying:

> **AS4:** "*…a case manager is assigned to follow the ART clients, and the disappeared patients can be easily identified. We keep track of the newly started patients over the phone. There are different problems in this process. Some patients do not answer our phone when we call them after fifteen days. They tell us that we have called the wrong address. Most of them give us fake phone numbers, so we can't reach them. The data clerk room provides the list of the disappeared patients every month. This is another way to find out about the lost patients. After we check the provided a list of the lost patients, we assign the responsible workers to find them. The adherence supporters provide evidence regarding the lost patients for the data clerks, ART focal person, and MDT team. And we filled in the evidence on our file. We identified the lost patients using this procedure*."

5.4.3.3.3.7 Sub-theme 7: Description of socio-economic status issues to be addressed prior to SDI-ART

Participants emphasized the perceived benefits of addressing socioeconomic issues before initiating same-day ART. They highlighted that providing food and financial assistance to support patients' transportation needs can significantly enhance their readiness and ability to adhere to same-day ART. By addressing these socioeconomic

barriers proactively, healthcare providers can improve patients' overall well-being and increase the likelihood of successful treatment initiation and adherence. A concurrent study conducted in Bangladesh on the barriers to antiretroviral therapy adherence among people living with HIV revealed that patients faced challenges in visiting ART clinics due to transportation costs and the unavailability or delayed supply of supplementary medicines not provided in government ART centres (Hossain et al 2022:7). However, in contrast to this finding, a study conducted in Canada on socioeconomic status and time trends associated with early ART initiation following primary HIV infection showed that socioeconomic factors were not associated with early ART initiation or same-day ART initiation (Mehraj, Cox, Lebouché, Costiniuk, Cao, Li, Ponte, Thomas, Szabo, Baril & Trottier 2018:4).

Three (3) participants were quoted saying:

> **SA1**: *"But they think as if they have recovered from this disease and leave the treatment. whereas some patients leave the drug saying, "I have no sufficient food, I have no work, hence, I cannot receive the drug. It is better for me to die instead of receiving the drug into my empty belly." Previously, charity organisations had been providing food support to poor people. Accordingly, these charity organisations have been supplying food, edible oil, and cash for poor people. But currently, there is no access to such services and support in hospitals except drugs."*
>
> **AS2:** *"It is difficult to find them at their home. It is better to allocate the necessary transport payments so that we can search for them by moving from home to home. Previously, we had been executing home-to-home searches only in town. But if the necessary transport costs are allocated for this purpose, we can execute home-to-home searches in rural areas. Associations of people living with HIV (PLW) should also be active and supported financially."*
>
> **AS4:** *"… patients begin same-day ART with frequent follow-up, adherence assessment, and financial assistance for items such as food and transportation. The town health office and healthcare facility managers should facilitate this, because same-day ART initiation alone cannot make a change in HIV care and treatment."*

5.4.3.3.3.8 Sub-theme 8: Enrolment processes for SDI-ART and follow-up strategies in various facilities are outlined

Based on the participants' explanations, it was observed that various approaches and procedures are employed to enrol patients for same-day ART initiation. One participant highlighted that HIV-positive patients arriving at a healthcare facility are initially engaged by case managers, while others mentioned nurses taking on the initial contact role. This diversity underscores the perceived benefits of having a consistent and evidence-based approach to enrolling HIV-positive patients, ensuring their effective retention in HIV care. Such standardised approaches help streamline patient engagement processes, improve continuity of care, and enhance overall treatment outcomes.

Two (2) participants were quoted saying:

> **AS2:** "*First, the HIV-positive person should come to our room and contact a health professional or nurse. When all the required information is identified, the patient is linked to the ART nurse, and he will be retested by the nurse. Then the patient will be sent to the case manager's room for adherence counselling. This is the flow of new patient enrolments in our healthcare facility*."

> **AS4:** "*First and foremost, the HIV-positive individual should come to our room and make contact with a health professional or nurse. He contacts the nurse first because all documents are in order, and he will be retested by the nurse. If the result is positive, he will be directed to the date clerk room, where the date clerk will provide him with the necessary information. He will then be directed to the case manager room or an Adriane supporter to receive counselling. The newly diagnosed HIV patient will be escorted to a private counselling room*."

5.4.3.4 Theme 4: Recommendations to enhance SDI-ART uptake

Participants highlighted the importance of health education, developing strategies for addressing lost to follow-up cases, providing patient financial support, and engaging various organisations in HIV care and treatment to enhance same-day ART initiation uptake. These recommendations were extensively discussed under four sub-themes, emphasising the role of cues to action in prompting improvements across the HIV care continuum.

5.4.3.4.4 Sub-themes

5.4.3.4.4.1 Sub-theme 1: Health education content suggested for SDI-ARTs

Participants emphasised the need for health education sessions and HIV discussions to enhance the provision of same-day ART initiation services. They also highlighted the potential role of public media in disseminating HIV information at a broader level. Currently, there is minimal public engagement with HIV-related issues, prompting participants to suggest revitalising media involvement to support same-day ART initiation services. This cue to action aims to increase public awareness, foster community support, and improve accessibility to HIV care and treatment services. In contrast to the Ethiopian setting, findings from Uganda on the role of mass media campaigns in improving adherence to antiretroviral therapy among adolescents living with HIV revealed that there is available health education mass-median of which the majority of participants were aware, while some respondents reported that they were unaware of any HIV media campaigns in their settings (Akankunda, Nambi Najjuma, Tayebwa, Byamugisha, Ariho & Bahati 2022:400).

Two (2) participants were quoted thus:

> **AS3:** "*Furthermore, it is better to have education and discussion sessions. All of these activities require financial support. I would appreciate it if someone could help us with this in order to reduce the lost to follow-up. Additionally, capacity building is required for case managers and adherence support. We are working with the training we received before 6 years*."

> **AS5:** "*No one gives education on the HIV topic. No media presents education and awareness on this topic. It has faded away. It is not like it used to be. The media should have a programme about HIV, and they even used to educate people on how to use condoms. It is difficult to believe that this has declined due to a lack of communication on HIV through the media*."

5.4.3.4.4.2 Sub-theme 2: Development of strategies for tracing lost to follow-up

Participants proposed a cue to action to address the issue of lost to follow-up tracing strategies by advocating for the creation of a national central database with unique

identification. They explained that patients often have two names, one used at healthcare facilities and another officially recognised in the community, which complicates tracking efforts. Participants highlighted how perceived stigma and discrimination lead patients to use different identities and register at multiple healthcare facilities, exacerbating the challenge of locating those who have lost access to HIV care. Establishing a national central database with unique identifiers is seen as essential to minimising the barriers caused by name and address changes, ensuring more effective tracing and retention strategies in HIV care. A concurrent pilot test study of biometric fingerprint scanning in Malawi revealed that it is a feasible and acceptable method of monitoring HIV visits, and that it may improve the ability to track patients' engagement in HIV care over time (Bengtson, Kumwenda, Lurie, Klyn, Owino, Miller, Go & Hosseinipour 2020:6).

One (1) participant was quoted saying:

> **AS5:** "*A system should be established that enables us to identify known HIV-positive patients. A central system like a banking system by which patients can be easily identified should be created to solve this problem from the ground up. Even with that being said, there are some patients who change their names. At our centre, they may be called by one name and another name in their home. This can be challenging. However, networking with others is beneficial and profitable in overcoming these challenges*."

5.4.3.4.4.3 Sub-theme 3: SDI-ART is recommended for newly diagnosed HIV+ patients

Participants advocate for cues to action to initiate ART on the same-day for newly diagnosed HIV-positive patients. They propose implementing same-day ART initiation alongside strategies such as providing food and financial support, and introducing injectable medications. Injectable medications are seen as a way to lessen the burden of daily pill intake, reduce stigma, and mitigate discrimination associated with oral medication. These cues to action aim to enhance treatment adherence, improve health outcomes, and support long-term retention in HIV care. Experience with post-exposure prophylaxis (PrEP), an injectable antiretroviral medication that provides eight weeks of continuous protection against HIV infection through a single intramuscular injection, demonstrates the benefits of this approach. It avoids the challenges of consistently taking oral pills and reduces the stigma associated with antiretroviral use (Danger 2022:110).

Two (2) participants were quoted saying:

> **AS2:** "*It is preferable to begin same-day ART with financial or food assistance for the patient. As they started it before the body deteriorated, I recommend that it continue*."

> **AS5:** *"… It would have been nice if the medication were taken in the form of an injection. This is best suited for same-day ART initiation, as it reduces pill burden, stigma, and discrimination*."

5.4.3.4.4.4 Sub-theme 4: Role of people and organisations to implement an awareness campaign for adherence to treatment

Participants underscore the need for cues to action involving various organisations and media to enhance awareness of HIV care and treatment services. They highlighted deficiencies in the current HIV care system, particularly in capacity building and awareness creation. One participant mentioned relying on training received six years ago, predating the introduction of same-day ART initiation. The implementation of new initiatives necessitates programme revisions and ongoing capacity-building to ensure healthcare providers remain updated. The lack of continuous training adversely affects counselling quality and leads to gaps in information, influencing management decisions. Continuous capacity building across all healthcare providers involved in HIV care, alongside an awareness creation system through faith-based organisations, is crucial to achieving HIV care and treatment targets effectively.

One (1) participant was quoted saying:

> **AS3:** "*We had been searching for lost patients as a campaign during the time when we were working with ICAP at Columbia University. The organisation has been providing us with vehicles to find lost patients in rural areas. But currently, there is no such support. As well, it is better to have a tea programme for discussion. This helps people get to know each other and exchange information. Furthermore, it is better to have education and discussion sessions. All of these activities require financial support. I would appreciate it if someone could help us with this in order to reduce the lost to follow-up. Additionally, capacity building is required for case managers and adherence support. We are working with the training we received*

before 6 years."

5.4.4 Case managers

Case managers are healthcare professionals dedicated to enhancing patient adherence to care and treatment. This study involved four case managers. Their experiences with same-day antiretroviral therapy were categorised into four themes and 22 sub-themes. Table 5.6 presents these themes and sub-themes, highlighting the case managers' perspectives on same-day antiretroviral therapy initiation and its correlation with viral suppression and retention in HIV care.

Table 5.6: Case manager's experiences on same-day ART initiation

Themes	Sub-themes
Theme 1: Challenges experienced by case managers related to SDI-ARTs	1.1 A newly diagnosed HIV+ patient's difficulty accepting HIV status results 1.2 Lack of acceptance by newly diagnosed HIV+ patients to SDI-ART 1.3 Lack of acceptance of SDI-ART leads to severe complications 1.4 Different reasons to lost to follow-up care were mentioned
Theme 2: Experiences of case managers related to SDI-ART for viral suppression and retention of HIV care	2.1 Paradoxical experiences explained in relation to SDI-ART by CMs 2.2 Advantages and disadvantages related to SDI-ART 2.3 Benefits of SDI-ART outlined by CMs for new HIV+ patients 2.4 Lost to follow-up experienced when newly diagnosed HIV+ patients are forced to SDI-ART
Theme 3: Description of the processes and interventions related to SDI-ART	3.1 Different enrolment processes for SDI-ART in various facilities are outlined 3.2 Activities involved in the enrolment process outlined 3.3 Different services and interventions are described 3.4 Criteria to be considered for SDI-ARTs on HIV+ patients explained 3.5 Interventions executed for HIV+ patients who refuse SDI-ART 3.6 Description of existing interventions to enhance adherence to ARTs 3.7 Strategies employed to assist patients in disclosing their HIV+ status and coping with stigma and discrimination outline 3.8 Strategies employed to assist patients in disclosing their HIV+ status 3.9 Counselling content to assist HIV+ patients to cope with disease coordination was

	explained
Theme 4: Recommendations by case managers related to SDI-ART during care of HIV+ patients	4.1 Suggestion that counselling and health education have to be first provided to HIV+ patients prior to SDI-ART 4.2 Drug literacy and medical instructions have to be provided prior to SDI-ART 4.3 Description of SDI-ART as a favourable method for newly diagnosed HIV+ patients 4.4 Various strategies are recommended in dealing with patients lost to follow-up HIV care based on the challenges at hand 4.5 Suggestion of provision of time for ART initiation to promote adherence to treatment

5.4.4.1 Theme 1: Challenges experienced by case managers related to SDI-ARTs

The following sub-themes were described by the participants, highlighting perceived barriers by case managers: refusal to begin ARV medication, severe complications, and loss of follow-up after starting same-day ART. Participants elaborated on these challenges experienced with same-day ART initiation. This theme's sub-themes were discussed extensively as follows:

5.4.4.1.1 Sub-themes

5.4.4.1.1.1 Sub-theme 1: A newly diagnosed HIV+ patient's difficulty accepting HIV status results

The participants, who are case managers, described perceived barriers they encounter, noting that new HIV-positive patients often struggle to accept their diagnosis. Participants explained that some patients prefer to be tested for HIV elsewhere, delaying the start of ART. In these situations, case managers give patients time to reflect and plan for starting ART at a later date. This highlights the perceived barriers related to counselling skills in convincing patients to accept their diagnosis and begin ART treatment same-day. A concurrent study in South Africa on the reasons for deferring ART among patients diagnosed under the same-day-ART policy found that high mobility, uncertainty about the procedure for initiating or continuing treatment, and other social circumstances were among the aspects that made accepting an HIV-positive result difficult (Onoya, Sineke, Mokhele, Bor, Fox & Miot 2021b:2787).

One (1) participant was quoted saying:

> **CM1:** "*A patient cannot memorise a lot of different information at once. It is difficult for a patient to accept an HIV-positive result, understand the advantages and disadvantages, and receive other information in a one-day session. A person who hears his HIV-positive result should get sufficient time to settle his shocked emotions and accept his status. When we tell them their HIV-positive test result, most of them ask us where they got the infection. My thoughts began to flow into their minds immediately after they heard of their positive status. They begin to go back to thinking about their former lives. When we ask what we have told them, they again ask how they got HIV*."

5.4.4.1.1.2 Sub-theme 2: Lack of acceptance by newly diagnosed HIV+ patients to SDI-ART

Participants highlighted perceived barriers when patients refuse same-day ART initiation and resort to religious measures to delay treatment. They explained that the healthcare provider team continues to offer medication until the patient decides to start ART. This reluctance to accept treatment suggests potential gaps in the counselling provided by the healthcare team and underscores the perceived barriers that need to be addressed to improve patient acceptance of ART. Supporting evidence from a study conducted in the East Gojjam zone, northwest Ethiopia, on the barriers and facilitators of same-day antiretroviral therapy initiation revealed instances where patients delayed ART initiation for up to eight months (Moges et al 2020a:1807).

One (1) participant was quoted saying:

> **CM4**: "*However, patients who refused might propose trying holly water or trying another alternative, and accordingly, we gave the patient some time and afterwards called the person just to see his or her status and family. Some people return, while others do not*."

5.4.4.1.1.3 Sub-theme 3: Lack of acceptance of SDI-ART leads to severe complications

Participants identified perceived barriers related to patients refusing same-day ART initiation, which can lead to severe health deterioration and, in extreme cases, death.

They described how most patients who refuse same-day ART return with advanced HIV disease, while others are reported dead when traced. Perceived barriers such as a lack of close follow-up, incorrect patient addresses, and insufficient infrastructure hinder effective tracing and contribute to increased mortality and morbidity among these patients. A concurrent systematic review conducted by Capital Medical University in Beijing, China on the benefits and risks of rapid antiretroviral therapy initiation found that delayed ART treatment was associated with a higher risk of severe bacterial infections than rapid ART/same-day treatment (Bai, Du, Lv, Hua, Dai & Wu 2022:9).

Two (2) participants were quoted saying:

> **CM2:** "…. *on the other hand, refuse and go home, returning with an advanced HIV disease after a year or reporting that they have died*."

> **CM4:** "*If the person refuses to accept the same-day ART initiation, we don't force them to accept it, as it always depends on the patient's decision. However, provide counselling and appoint the patient to come back immediately for another day. We follow the patient through phone calls and provide counselling to encourage the patient to start on ART as soon as possible. However, patients who refused might propose trying holly water or trying another alternative, and accordingly, we gave the patient some time and afterwards called the person just to see his/her status and family. Some people return, while others do not.*"

5.4.4.1.1.4 Sub-theme 4: Different reasons to lost to follow-up care were mentioned

Participants described perceived barriers leading to patients initiated on same-day ART being lost to HIV care and treatment. They explained that reasons for lost to follow-up included religious-related issues, known HIV-positive individuals seeking check-ups at different facilities, self-transfer to other healthcare facilities, mobile lifestyles, and reluctance to disclose HIV status to family members. These barriers contribute to the challenges of maintaining continuous care and treatment for patients. This finding aligns with a study conducted in Malawi on factors associated with lost to follow-up of HIV-positive mothers and their infants enrolled in an HIV care clinic, where patients discontinued medication due to personal reasons (such as feeling healthy), family dynamics (lack of disclosure), drug side effects, insufficient access to food and transportation, negative experiences with healthcare workers, and seeking alternative

care from religious and traditional healers (Mpinganjira et al 2020:9).

Two (2) participants were quoted saying:

> **CM3:** "*The major reason patients are lost to follow-up is due to a religion-related issue. They declare that they are healed after pursuing holy water (Tsebel). While others state that they are feeling reluctance, they hate the fact that they are taking the medication for longer periods of time. As a result, they stopped the medication. And they may quit it by themselves for other reasons*."
>
> **CM4:** "*There are many reasons why patients quit medication and lost from HIV care. Some patients begin the ART at other healthcare facilities and come to our healthcare facility for a check-up. Except for children, there are usually no people who can be considered new to this end. There are situations in relation to shifting from facility to facility, reluctance, tendency to heighten the fact that the medications are taken for life; address lost; family missing, living situation getting worse; patients migrating to remote areas. All of these factors may play a role in the decision to discontinue medication and lost to follow-up*."

5.4.4.2 Theme 2: Experiences of case managers related to SDI-ART for viral suppression and retention of HIV care

Participants discussed the perceived benefits of same-day ART initiation for viral suppression and retention in HIV care. They shared their experiences, highlighting both advantages and disadvantages for newly diagnosed HIV-positive patients. They emphasised the benefits of same-day ART initiation in improving patient outcomes while also acknowledging the challenge of lost follow-up when newly diagnosed patients are rushed into the process. This theme was explored in four sub-themes, as follows:

5.4.4.2.2 Sub-themes

5.4.4.2.2.1 Sub-theme 1: Paradoxical experiences explained in relation to SDI-ART by CMs

Participants discussed their experiences with retention following same-day ART initiation. Furthermore, they explained that patients who started on same-day ART sometimes

faced challenges remaining in HIV care. However, participants also reported positive outcomes, noting that HIV-positive patients who started on same-day ART made good progress in viral load suppression. To maximise the perceived benefits and sustain retention in care with viral load suppression through a coordinated mechanism, participants emphasised the need to address both perceived benefits and perceived barriers regarding same-day ART initiation.

Two (2) participants were quoted saying:

> **CM1:** "*From my experience and available evidence, patients who started ART on the same-day are more likely to go missing A. Because they start the drug without adequate counselling and discontinue it after a short time. Additionally, I thought that patients who started on same-day ART were repeat testers. I think it has good outcomes regarding viral suppression, but as I have mentioned, it is the cause of lost to follow-up*."
>
> **CM4:** "*Same-day ART has good viral suppression, but most patients started on same-day ART were lost from HIV care. This may be due to repeat HIV testing. Overall, I think same-day ART initiation has a positive association with viral suppression and retention care*."

5.4.4.2.2.2 Sub-theme 2: Advantages and disadvantages related to SDI-ART

Case managers highlighted the perceived benefits of same-day ART initiation, noting its dual impact on patient care. They emphasised that while it prevents opportunistic infections and supports overall health maintenance, challenges such as patient lost to follow-up and medication non-adherence also arise. To optimise the benefits of same-day ART initiation, the focus should be on mitigating perceived barriers to enhance patient retention in HIV care and achieve better viral load suppression.

Two (2) participants were quoted saying:

> **CM1:** "*… has both advantages and disadvantages. Patients will stop the drug if they don't understand the benefits of the drug. They cease the treatment at their own will. This is because they started the drug without understanding the benefits of it. It is better to start the drug before the body is affected by opportunistic infections. For example, I had been infected with TB. Starting the drug on the*

same-day can reduce the risk of such risky conditions and infections. It helps to reduce their viral load. We share with them our experience so that they can learn from it. Regarding its disadvantage, if we do not give time to the person who knows his positive status for the first time, we cannot provide him with the necessary education and counselling. While the person is shocked by the positive result, his mind and emotions are not ready to accept our education and counselling. As a result, patients may be lost to follow-up."

CM4: "*The advantage of being overweight is that the individual can maintain their health before further harm is done to them, even before some symptoms and signs appear in their body. Sometimes there are people who suddenly begin taking the medication and are shocked. So, in order to avoid this incident, we advise and support the patient for psychological readiness. Previously, people have faced difficulty quitting their practices and beginning the medication. However, now it has become necessary to create awareness at the service delivery point where HIV testing is done for same-day ART initiation. And we are here to provide the necessary information that people need to know. It is always profitable if patients start on the same-day*."

5.4.4.2.2.3 Sub-theme 3: Benefits of SDI-ART outlined by CMs for new HIV+ patients

Case managers highlighted the perceived benefits of initiating ART on the same-day for newly diagnosed HIV-positive individuals. They underscored that same-day ART initiation significantly contributes to improving overall health and achieving viral suppression among patients. Participants noted that this approach plays a crucial role in reducing morbidity and mortality associated with HIV, emphasising its life-saving potential. They also recognised the benefits of same-day ART initiation in achieving undetectable viral loads, thereby reducing HIV transmission and supporting the attainment of global targets by 2030. A related study conducted in Rwanda on challenges in ART initiation and engagement in HIV care found that many participants recognised the health advantages of early ART initiation, such as maintaining health, preventing transmission to others, and avoiding the potentially stigmatising physical manifestations of advanced HIV (Ross et al 2021:6).

Two (2) participants were quoted saying:

CM2: "*They will begin the drug on the same-day because ART helps them live a healthy life. It aids in the reduction of the viral load in their bodies and immunity strengthening, which protects them from opportunistic infections*."

CM3: "*One of the benefits is that, if the patient begins the medication before advanced HIV disease, it reduces morbidity and mortality due to HIV. Furthermore, it can reduce HIV transmission by attending viral suppression*."

5.4.4.2.2.4 Sub-theme 4: Lost to follow-up experienced when newly diagnosed HIV+ patients are forced to SDI-ART

Participants noted the perceived benefits of collaboratively deciding on same-day ART initiation. They observed that patients compelled to start ART on the same-day were more likely to disengage from care. Emphasising the importance of collaboration, they highlighted that healthcare providers and patients should together weigh the perceived benefits against the perceived barriers to ensure better engagement and retention in care. Evidence from related studies indicates that healthcare providers sometimes pressure patients to start ART without sufficient preparation for adherence. This pressure stems from the evaluation of healthcare professionals based on the number of new clients initiating ART each month; failure to meet these quotas, even at the district level, can lead to criticism (Moges et al 2020a:1808).

Two (2) participants were quoted saying:

CM2: "*On the other hand, forcing a person to start on the same-day ART has more harm than benefits. Lost to follow is common among patients started on same-day ART. We follow their adherence to ART after started on same-day*."

CM4: "*If the person refuses to accept the same-day ART initiation, we don't force them to accept it, as it always depends on the patient's decision. However, provide counselling and appoint the patient to come back immediately for another day. We follow the patient through phone calls and provide counselling to encourage the patient to start on ART as soon as possible. However, patients who refused might propose trying holly water or trying another alternative, and accordingly, we gave the patient some time and afterwards called the person just to see his/her status and family. Some people return, while others do not."*

5.4.4.3 Theme 3: Description of the processes and interventions related to SDI-ART

Case managers provided insights into the perceived benefits of the enrollment process and interventions for same-day ART within their facilities. They detailed the overall procedures for enrollment, the criteria for same-day ART initiation, adherence improvement interventions, strategies for locating lost patients, and the counselling approach and content. These sub-themes were extensively discussed, highlighting the perceived benefits of these strategies in enhancing patient outcomes and retention in care:

5.4.4.3.3 Sub-themes

5.4.4.3.3.1 Sub-theme 1: Different enrolment processes for SDI-ART in various facilities are outlined

Case managers described the perceived benefits of a standardised enrolment process for same-day ART initiation. They noted variations in current practices among healthcare facilities, which differ from what nurses and other healthcare providers reported. In some instances, patients may directly contact the ART focal person without involvement from case managers or adherence supporters. This underscores the perceived benefits of establishing a uniform procedure across healthcare facilities to ensure consistent and effective enrollment of new HIV-positive patients for same-day ART initiation.

Two (2) participants were quoted saying:

> **CM1:** *"First, the patient will contact the case manager or adherence supporters. Then we send the patient to the ART focal person (FP) for retesting verification. This is not a constant process. Sometimes, patients may contact the ART focal person directly. They directly bring them here if they want counselling to convince the patient. By counselling them, we share our experience. We can convince them to accept their HIV-positive result and start same-day ART."*

> **CM4:** *"If the person tests positive for HIV, they will first meet with case managers. Following that, we will determine if the individual has begun medication somewhere and will conduct an investigation into this point. If we confirm that the person is new to medication, we will assess the patient's understanding of HIV.*

We investigate to what extent he understands the virus and whether the patient has a sufficient understanding of the disease. We will share our experiences and what it truly means to be HIV-positive after we have investigated this point."

5.4.4.3.3.2 Sub-theme 2: Activities involved in the enrolment process outlined

Case managers described the perceived benefits of their roles in the enrolment of HIV-positive patients. They explained that the enrolment process typically begins with the case manager, adherence supporters, and ART focal persons, followed by counselling and HIV verification testing. This structured approach ensures that patients receive comprehensive support from the outset, enhancing their understanding and commitment to same-day ART initiation.

Three (3) participants were quoted saying:

CM1: *"First, the patient will contact the case manager or adherence supporters. Then we send the patient to the ART focal person (FP) for retesting verification. This is not a constant process. Sometimes, patients may contact the ART focal person directly. They directly bring them here if they want counselling to convince the patient. By counselling them, we share our experience. We can convince them to accept their HIV-positive result and start same-day ART."*

CM2: *"If HIV-positive patients come to our facility first, they should contact the case managers. Then, based on available information, the patient will be referred to another healthcare facility or to an ART nurse for ART initiation with the facility. This is not a constant process. By counselling them and sharing our experience, we can convince them to accept their HIV-positive result and start the drug. We take him to the data clerk room to register his information on the appropriate forms."*

CM3: *"The first point of contact for new HIV-positive patients is the case manager and adherence support. After counselling provided by case managers or adherence supporters, the patient will be registered and assessed for same-day ART initiation eligibility by an ART nurse. Then, the patient will be linked to chronic care and initiated on same-day ART if eligible for same-day ART initiation."*

5.4.4.3.3.3 Sub-theme 3: Different services and interventions are described

Case managers described the perceived benefits of various services and interventions in HIV-positive care and treatment. They highlighted that these interventions include counselling on physical exercise, feeding practices, and financial support for patients. Participants also perceived benefits in providing advanced training for case managers and adherence counselling. They suggested that offering advice to patients in a dedicated ART room for same-day ART initiation could further enhance patient outcomes and adherence. A concurrent study on patient experiences and preferences for antiretroviral therapy service provision in north western Ethiopia found that nearly all participants preferred either a free or subsidised cost of visit, including transportation and medications other than ARV drugs (Belay, Yitayal, Atnafu & Taye 2022:14).

Three (3) participants were quoted saying:

> **CM1:** *"There is no issue of physical exercise, in our counselling topics. But we advise them to do physical exercise such as walking. Regarding food, food is one of the main topics included in our counselling service. We provide them with information regarding how to prepare food in their house and receive the drug. We support those who drink alcohol to stop it. Even if they cannot quit at once, we support them so that they can quit gradually."*
>
> **CM3:** *"I recommended a same-day ART initiation service with trained case manager counselling and a separate ART room for same-day ART initiation. That means newly ART started patients should be followed by one responsible nurse at least for three months."*
>
> **CM4:** *"I suggest same-day ART initiation alone cannot be successful. It requires supporting the patient financially, at least to cover the transportation fee and food. The aid organisation should assist in this regard to overcome the current lack of follow-up. Capacity building for case managers on counselling and care provision should be regular to update the provider."*

5.4.4.3.3.4 Sub-theme 4: Criteria to be considered for SDI-ARTs on HIV+ patients explained

Case managers described the perceived benefits of same-day ART initiation. They noted that the criteria for initiating ART on the same-day are determined by the clinician working in the ART clinic, which allows for immediate care tailored to the patient's condition. Additionally, they explained that new HIV-positive patients can begin treatment if they are free of opportunistic infections. This flexibility in criteria demonstrates a patient-centred approach, although it also highlights the absence of standardised guidelines across healthcare facilities for same-day ART initiation. A study on same-day antiretroviral therapy initiation for HIV-infected adults in South Africa discovered that patients who started same-day ART had less advanced HIV infection than later initiators, with higher baseline CD4 counts and WHO stage I and II diseases (Lilian et al 2020b:4).

One (1) participant was quoted saying:

> **CM3:** "*The eligibility criteria will be decided by the clinicians, but according to my understanding, if a patient has no opportunistic infection, ART can be initiated on the same-day.*"

5.4.4.3.3.5 Sub-theme 5: Interventions executed for HIV+ patients who refuse SDI-ART

Case managers described the perceived benefits of addressing the challenges of same-day ART initiation. They noted that one significant challenge is the refusal to start ART, often due to religious reasons. Patients might suggest alternative remedies, such as holy water, instead of ART drugs. In response, participants described the perceived benefits of an intervention where patients who refused same-day ART initiation were supported through ongoing phone counselling by case managers until they agreed to start ART. However, they also highlighted the need for a written guiding document outlining the process for supporting patients who are not initiated on same-day ART, detailing how they will be supported when ready to start ART and how they will be followed thereafter. This would ensure a structured and consistent approach to patient care.

Two (2) participants were quoted saying:

> **CM1:** "*We follow them via phone and provide counselling. Most of them tell us that*

they went to the use of holy water and church for prayer. As a result, they don't come back. They want to treat the virus with spiritual and holy water. Some of them tell us that they are recovered and warn us not to call them again."

CM4: "*If the person refuses to accept the same-day ART initiation, we don't force them to accept it, as it always depends on the patient's decision. However, provide counselling and appoint the patient to come back immediately for another day. We follow the patient through phone calls and provide counselling to encourage the patient to start on ART as soon as possible. However, patients who refused might propose trying holly water or trying another alternative, and accordingly, we gave the patient some time and afterwards called the person just to see his/her status and family. Some people return, while others do not*."

5.4.4.3.3.6 Sub-theme 6: Description of existing interventions to enhance adherence to ARTs

Case managers highlighted the perceived benefits of enhancing adherence to ART for patients initiated on same-day ART. They explained the current system, which involves identifying patients with poor adherence and diligently addressing these gaps. However, they noted that there is no specific intervention tailored to improve adherence support for same-day ART initiation, as this is a new initiative that requires careful consideration. Emphasising the perceived benefits of targeted interventions could significantly improve adherence outcomes for these patients.

Two (2) participants were quoted saying:

CM1: "*The patient who has been counselled properly has good adherence to the drug. But if you give a drug to a patient who has no sufficient awareness of HIV, it is useless. We have no specific and separate system to follow HIV patients who started the drug on the same-day. Actually, adherence was assessed in the next follow-up visit by case managers, adherence support, and ART providers. It will be rated as a percent out of 100%, and 95% and above is considered good adherence*."

CM2: "*Most of them adhere to the drug. Some of them are lost to follow-up. We can differentiate between a new client and a patient who needs to have an*

adherence gap. We do not have a separate and specific way to follow same-day patients. In general, we are following our new patients properly."

5.4.4.3.3.7 Sub-theme 7: Strategies employed to assist patients in disclosing their HIV+ status and coping with stigma and discrimination outline

Case managers highlighted the perceived benefits of using phone calls and home visits to trace patients lost to HIV care and treatment. They suggested additional strategies to enhance this process, such as implementing a central database supported by biometric fingerprints to prevent duplication and reduce lost to follow-up. Participants also emphasised the benefits of activating and operationalizing associations of people living with HIV (PLW) to provide adherence support and social assistance to HIV-positive individuals. These measures are seen as vital to improving patient retention and care continuity. A concurrent study conducted in Portugal on the time from HIV diagnosis to ART initiation found that HIV-positive patient associations play a crucial role in referral procedures and provide support to patients until they commence ART treatment, working closely with hospitals (Nicolau, Cortes, Lopes, Virgolino, Santos, Martins, Faria, Reis, Santos, Maltez, & Pereira 2021:7).

Three (3) participants were quoted saying:

CM2: "*Finding a patient lost to HIV care is a very difficult task. The first attempt is to get the patient's name through their phone number. If it is not successful, we will conduct a home-to-home search, but only if the house number is registered correctly. Thus, I recommend that the phone numbers of the patients be registered properly so that home-to-home searches can be executed in rural areas. Furthermore, I recommend that the association of people living with HIV (PLW) be activated. Thus, a digital system should be initiated to identify known HIV patients to reduce the loss of follow-up cases*."

CM3: "*To minimise lost to follow-up challenges, a central database with a unique ART number is required. This will avoid repeat testers, which will advance HIV care with minimal lost to follow-up*."

CM4: "*People are often difficult to locate because they can be found in remote or distant areas. I would suggest the application of fingerprints be incorporated into*

this service. There would have been no duplication. There can be no instance in which it is assumed to exist in Kenya but not in Ethiopia. I wish there could be such an application."

5.4.4.3.3.8 Sub-theme 8: Strategies employed to assist patients in disclosing their HIV+ status

Case managers highlighted the perceived benefits of addressing the challenge of HIV status disclosure. They noted that reluctance to disclose HIV status to family and friends is the primary cause of lost to follow-up and poor adherence to ARV treatment. By overcoming these barriers, patients can receive better support from their social circles, which can lead to improved retention in care and adherence to treatment. This underscores the importance of creating supportive environments that encourage patients to disclose their HIV status. A similar finding from a study conducted in Zambia on patients' reasons for declining same-day antiretroviral therapy initiation revealed that fear of disclosing to family and friends, as well as a lack of acceptance of HIV positivity, were reported as personal, social, and structural barriers to same-day ART initiation (Pry et al 2020:4). Participants recommended that strategies for HIV status disclosure counseling should be a cornerstone of care, implemented with various trained personnel.

One (1) participant was quoted saying:

CM1: "*We advise them to tell their family about their status. We also inform and advise the patients to bring their families so that they can be tested for HIV. Most people don't like to tell their family about their HIV status. This is one of the most common causes of lost to follow-up in HIV chronic care*."

5.4.4.3.3.9 Sub-theme 9: Counselling content to assist HIV+ patients to cope with disease coordination was explained

Case managers emphasised the perceived benefits of personalised counselling in HIV care and treatment services. They highlighted that counselling is tailored to each patient's level of education and awareness about HIV. According to their insights, the content of counselling sessions is customised to suit the educational background of the patient and is delivered in a step-by-step manner. However, there is currently no standardised protocol or procedure for structuring counselling content; instead, it is determined by the

individual counsellor based on their discretion and expertise. A concurrent study in South Africa examining the quality of HIV counselling services in public health facilities highlighted various counselling topics, such as partner involvement, disclosure, explanation of the treatment process, family planning, assessing past ARV use, clarifying the ARV regimen, and emphasising adherence to treatment (Kyobutungi et al 2022:127).

Two (2) participants were quoted saying:

> **CM2:** "*We check their viral load once every six months and every year. We provide them with counselling and education based on the results. Actually, there is no separate system for monitoring the viral load of patients started on same-day ART. We conduct viral load testing for those newly started on ART within 6 months of the time of ART initiation*."
>
> **CM3:** "*When an HIV-positive patient first enrols in our healthcare facility, we provide medication preconditions counselling. We discuss HIV, the benefit of the ART drug, and the fact that the person will be healthy after taking the medication. We encourage the patient to disclose their HIV status to their family for additional support and HIV testing of family members*."

5.4.5.4 Theme 4: Recommendations by case managers related to SDI-ART

Case managers highlighted the importance of cues to action in facilitating health education for HIV-positive patients starting same-day ART. This includes educating patients on drug literacy, medical interventions, and the specific benefits associated with same-day ART initiation. They emphasised the need to educate patients comprehensively about these benefits to encourage adherence and retention in HIV care. The details of these cues to action were discussed in the following sub-themes:

5.4.5.4.4 Sub-themes

5.4.5.4.4.1 Sub-theme 1: Suggestion that counselling and health education have to be first provided to HIV+ patients prior to SDI-ART

Case managers highlighted cues to action in providing comprehensive counselling to facilitate same-day ART initiation for HIV-positive individuals. They emphasised the

importance of educating patients not only about starting ART the same-day but also about abstaining from alcohol, making appropriate dietary choices, understanding the significance of physical activity, and preventing other sexually transmitted diseases. However, they noted that there is a lack of specific topics and methods to assess whether patients have fully comprehended the information provided. A study conducted in Uganda on the quality of HIV counselling services contrasts with this finding; it reported that 91.9% of HIV counselling service providers effectively communicated results to clients to ensure their understanding of the information (Kyobutungi et al 2022:126). It is essential to offer specific topics tailored to the educational level of new patients and implement methods to verify patients' comprehension of counselling in order to facilitate same-day ART initiation and retention in HIV care.

Two (2) participants were quoted saying:

> **CM1:** "*Our role is to counsel HIV-positive people to start same-day ART if possible, but the ultimate goal is to initiate patients on ART as soon as possible. We provide education regarding the benefits of starting the drug on the same-day. We advise the patient to start ART on the same-day. The service's long-term goal is to keep patients on ARV drugs*."
>
> **CM2:** "*We provide education regarding avoiding alcoholic drinks, foods, and physical exercise. In particular, we warn them not to eat raw foods. We also educate them regarding STIs based on their age*."

5.4.5.4.4.2 Sub-theme 2: Drug literacy and medical instructions has to be provided prior to SDI-ART

Case managers emphasised cues to action by stressing the importance of patients comprehending the benefits of medication and undergoing counselling with medical guidance before starting same-day ART. They highlighted the need to ensure that patients fully accept the results through supportive counselling, enabling them to understand the perceived benefits of same-day ART initiation while addressing any perceived barriers. This approach fosters a trusting relationship between healthcare providers and patients, ensuring patients are prepared to commence same-day ART. This finding is corroborated by a study conducted in the East Gojjam zone, northwest Ethiopia, on barriers and facilitators of same-day antiretroviral therapy initiation, where patients

expressed mistrust in HIV test results, particularly in the district health centre (Moges et al 2020a:1807).

Two (2) participants were quoted saying:

> **CM1:** "*I recommend that a person who knows their positive results seek the necessary counselling and education before starting the drug. Because he needs to know the advantages and disadvantages of the drug. He needs time to make himself ready for the drug. For example, I was shocked when I knew my result for the first time, and I feared starting the drug. I had started on a TB drug before I started ART. One day, I went to the toilet to dispose of my drugs there and failed. I told my doctor. He asked, "What do you have for breakfast, lunch, and dinner?" I told him that I eat injera. Then he told me: "If you want to live, receive this drug as prescribed." This advice settled my emotions. I convinced myself. Thus, a person should know the benefits of the drug to adhere to it*."
>
> **CM2:** "*Some people start using drugs here and then move on to another location. As a result, I recommend that we give them some time to reflect and decide whether or not to consider the drug's benefits. This medication is free of charge. As a result, I recommend that the necessary legal procedures for drug distribution be followed. Legal responsibility must be declared in relation to ART drug utilisation*."

5.4.5.4.4.3 Sub-theme 3: Description of SDI-ART as a favourable method for newly diagnosed HIV+ patients

Case managers highlighted cues to action, outlining the recommended approach for same-day ART initiation and emphasising its significant role in achieving viral load suppression. They underscored that viral load suppression is a key objective of ART initiation, aligning with Ethiopia's adoption of the global 90-90-90 target. This target aims to achieve three milestones: ensuring 90% of people living with HIV know their status, 90% of diagnosed individuals receive ART, and 90% of those on ART achieve viral suppression. These strategies are integral to the efforts aimed at eliminating the HIV epidemic by 2030 (Haileamlak 2019:298).

Two (2) participants were quoted saying:

CM3: *"… same-day ART initiation is associated with viral suppression…*"

CM4: "…*Same-day ART has good viral suppression…*"

5.4.5.4.4.4 Sub-theme 4: Various strategies are recommended in dealing with patients lost to follow-up HIV care based on the challenges at hand

Case managers highlighted cues to action by focusing on strategies to address patients lost to follow-up in HIV care due to identified challenges. They emphasised the difficulty in tracking down HIV patients who are lost to follow-up and suggested implementing a digital system (fingerprint-based identification) integrated with a central database to minimise the time spent on tracing efforts. A concurrent pilot test study of biometric fingerprint scanning in Malawi revealed that the biometric fingerprint method is used to improve the ability to track patients' engagement in HIV care over time (Bengtson et al 2020:6).

Three (3) participants were quoted saying:

CM2: *"Finding a patient lost to HIV care is a very difficult task. The first attempt is to get the patient's name through their phone number. If it is not successful, we will conduct a home-to-home search, but only if the house number is registered correctly. Thus, I recommend that the phone numbers of the patients be registered properly so that home-to-home searches can be executed in rural areas. Furthermore, I recommend that the association of people living with HIV (PLW) be activated. Thus, a digital system should be initiated to identify known HIV patients to reduce the loss of follow-up cases."*

CM3: ***"****To minimise lost to follow-up challenges, a central database with a unique ART number is required. This will avoid repeat testers, which will advance HIV care with minimal lost to follow-up."*

CM4: *"I would suggest an application of fingerprints be incorporated into this service. There would have been no duplication. Besides, you may even know where exactly the right person is located."*

5.4.5.4.4.5 Sub-theme 5: Suggestion of provision of time for ART initiation to promote adherence to treatment

Case managers emphasised cues to action regarding the delay in initiating same-day ART for various reasons. They emphasised the significance of providing time for contemplation, psychological readiness, and adherence preparation among individuals who choose not to start ART immediately. This approach seeks to tackle identified gaps, including the necessity for tailored counselling topics for newly diagnosed HIV-positive individuals and the critical role of psychologically focused counselling delivered by trained counsellors to encourage patients to accept their diagnosis and begin same-day ART. A study conducted in South Africa on health provider perspectives regarding the implementation of the same-day ART initiation policy found that patients who possess knowledge about HIV and ART encounter fewer challenges related to ART readiness (Onoya et al 2021a:5).

Two (2) participants were quoted saying:

> **CM1:** "*...there is no specified requirement. But some patients request us to give them time so that they can think and come back. But most people are willing to start same-day ART*."

> **CM4:** "*The challenge is that patients may not get the information you give on the first date, and missing information can happen on ARV drug utilisation. Therefore, the disadvantage depends on the patient's awareness of HIV and on their perception of the patient as well. As our understanding differs, so do people's understandings. If the patient has not begun ART right now, it is difficult as the situation gets worse.*"

5.4.5 Patients

Patients who have started on same-day ART are participants in this study. This study included the participation of ten patients. In this category, five themes and 23 sub-themes were used to explain patients' experiences with same-day antiretroviral therapy. Table 5.7 addresses themes and sub-themes reflecting patients' experiences with same-day antiretroviral therapy initiation status associated with viral suppression and retention in HIV care.

Table 5.7: Patients' experiences on same-day ART initiation

Themes	Sub-themes
Theme 1: Challenges experienced by newly diagnosed HIV+ patients with SDI-ART	1.1 An explanation that disclosing HIV+ status is difficult results in affecting drug adherence 1.2 Fear of stigma and discrimination is experienced, resulting in being scared and having feelings of isolation 1.3 Existing feelings of fear and anxiety experienced by newly diagnosed HIV+ patients were described 1.4 An explanation of the reasons why HIV+ patients lost to follow-up care 1.5 An explanation is that multiple drugs are difficult to take, resulting in poor adherence to ART
Theme 2: Description of the lifestyle that must be adopted by HIV+ patients	2.1 Description of life-style activities adhered to by HIV+ patients 2.2 Health education provided is beneficial to life-style modification and the promotion of quality of life 2.3 Strategies employed to get help when experiencing challenges are outlined 2.4 Provision of in-depth counselling by HCP and content thereof outlined by HIV+ patients
Theme 3: Experiences of patients related to SDI-ART for viral suppression and retention of care	3.1 An explanation of the various benefits experienced by patients related to SDI-ART 3.2 Explanation of the experiences related to the starting of SDI-ART 3.3 An explanation related to one's own lifestyle that might affect the disease prognosis is described 3.4 Lack versus adherence to ART experienced and reasons thereof mentioned
Theme 4: Knowledge held by patients related to **the** SDI-ART programme	4.1 Lack versus existence of knowledge related to years of being diagnosed with HIV 4.2 Lack of knowledge related to the treatment the patient is taking 4.3 Lack of knowledge of health care providers affects the patient's consultation 4.4 Existence versus lack of knowledge related to the disease condition and all related matters described 4.5 Existing versus lack of knowledge of the consequences of a lack of adherence to treatment 4.6 Existence of knowledge related to the importance of SDI-ART explained
Theme 5: Suggestions made by newly diagnosed patients related **to the** SDI-ART Programme	5.1 The support for SDI-ART HIV+ positive patients and the reasons thereof are described 5.2 One pill is suggested to promote adherence to treatment 5.3 Injectables are suggested to promote adherence to treatment and to promote privacy 5.4 In-depth counselling to promote positive uptake and adherence to SDI-ART is suggested

5.4.5.1 Theme 1: Challenges experienced by newly diagnosed HIV+ patients with SDI-ART

Participants discussed the perceived barriers faced by HIV-positive patients, including challenges related to disclosure, fear of stigma and discrimination, and feelings of isolation, all of which contribute to patients being lost to follow-up care. Additionally, the burden of managing multiple medications was highlighted as a significant perceived barrier, making adherence to ART challenging. These factors collectively result in poor adherence to ART. The specifics of this sub-theme were elaborated as follows:

5.4.5.1.1 Sub-themes

5.4.5.1.1.1 Sub-theme 1: An explanation that disclosing HIV+ status is difficult results in affecting drug adherence

Participants identified perceived barriers such as reluctance to disclose HIV status due to fear of stigma and discrimination, leading to poor adherence. This reluctance, combined with inadequate information and counselling during testing, post-testing, and ART initiation, exacerbates these perceived barriers. Patients often view HIV as a condition imposed by a higher power and fear isolation from family and friends if they disclose their status. These findings align with a study in Malawi on factors influencing adherence to antiretroviral treatment, which found that many patients lacked support from loved one's post-disclosure. For instance, one participant shared, "My wife knows my status but does not support me because she is HIV-negative herself. Sometimes she tells me that she is tired of looking after me because I am HIV-positive. In such cases, sometimes I don't even take the drugs" (Chirambo et al 2019:7). This illustrates that disclosure without sufficient counselling can strain family relationships and undermine medication adherence.

Two (2) participants were quoted saying:

> **P1:** "*Nobody knows except my wife, who is taking an ART drug. I worry when I move from my home for different social activities about how to take my drug. Really, I am taking this drug for myself, not for anyone else. However, due to my fear of stigma and discrimination, I am afraid to disclose myself. No matter the same-day ART initiation, I am talking generally about receiving an ART drug*."

P4: "*… second lack of disclosure is due to a fear of stigma. This is what I think may be the reason*."

5.4.5.1.1.2 Sub-theme 2: Fear of stigma and discrimination is experienced, resulting in being scared and having feelings of isolation

Participants described how HIV-positive individuals often face perceived barriers, such as fear and isolation within their communities due to the stigma and discrimination associated with the disease. They attributed these perceived barriers to a reluctance to disclose their HIV status, which may stem from a lack of awareness about HIV. A concurrent study conducted in Indonesia on the stigma experienced by patients with mental illness and mental health nurses found similar sentiments. Participants in the study expressed feelings of shame and isolation, noting that they were perceived as different from "normal" individuals (Subu, Wati, Netrida, Priscilla, Dias, Abraham, Slewa-Younan & Al-Yateem 2021:5).

Three (3) participants were quoted saying:

P1: *"… due to my fear of stigma and discrimination, I am afraid to disclose myself. No matter the same-day ART initiation, I am talking generally about receiving an ART drug."*

P4: *"I am not sure, but I think it is due to the daily medication people may bore to take. That is the reason I suspected, based on my experience. The second lack of disclosure is due to a fear of stigma. This is what I think may be the reason."*

P6: *"I think lack of HIV awareness may be a fear of stigma."*

5.4.5.1.1.3 Sub-theme 3: Existing feelings of fear and anxiety experienced by newly diagnosed HIV+ patients were described

Participants discussed the perceived barriers faced by newly diagnosed HIV-positive patients, highlighting prevalent feelings of fear and anxiety. These perceived barriers are exacerbated by social isolation stemming from discrimination and ignorance. Participants attributed this situation to a lack of understanding about HIV transmission methods, which

leads to the psychological and social isolation of HIV-positive individuals. A concurrent study conducted in Iran on the lived experiences of HIV-infected patients following a positive diagnosis further highlighted this phenomenon. It revealed that newly diagnosed HIV-positive patients experience fear of loneliness, death, and shame upon receiving their diagnosis (Imani, Zandi & Mirzaei 2021:4).

Three (3) participants were quoted saying:

> **P1:** *"I'm afraid of people. because they may discriminate in social life. Some people believe HIV can be transmitted by talking or eating with HIV patients. Generally, our community has no good ideas for us, so that is why I keep it secret."*
>
> **P4:** *"It is known that you will be ignored in social life. This is our perception and what we are looking at in the community. This affects you psychologically and socially because you will be isolated, which is painful."*
>
> **P5:** *"This is due to a lack of knowledge regarding HIV transmission methods. HIV will not be transmitted by eating together; it depends on people's knowledge, education, etc. But people isolate you, even when they walk with you. I think that was the reason."*

5.4.5.1.1.4 Sub-theme 4: An explanation of the reasons why HIV+ patients lost to follow-up care

Participants explained that HIV-positive patients often discontinue HIV care due to perceived barriers, such as lifestyle changes, including relocation, reluctance to disclose their status out of fear of stigma, and religious concerns. Additionally, three out of ten participants reported uncertainty about the reasons behind patients losing access to HIV care. This suggests that patients disengage from HIV care for various perceived barriers, including feeling healthy, fear of drug side effects, and religious factors. This finding is consistent with a study conducted in Malawi on factors associated with the loss of follow-up for HIV-positive mothers and their infants enrolled in an HIV care clinic. The study revealed that patients discontinue medication for personal reasons (feeling healthy), family-related factors (lack of disclosure), drug side effects, food and transportation challenges, negative attitudes from healthcare workers, and seeking alternative care from religious and traditional healers (Mpinganjira et al 2020:4).

Three (3) participants were quoted saying:

> **P1:** "*It was true. I also know many patients who know themselves to be HIV-positive but have discontinued ART drugs. I have seen this patient get worse when they come back to healthcare facilities. I think there are different reasons. Some of them may be due to lifestyle (movability). Others are careless about their lives. Some also say I have cured HIV*."

> **P4:** "*I am not sure, but I think it is due to the daily medication people may bore to take. That is the reason I suspected, based on my experience. The second lack of disclosure is due to a fear of stigma. This is what I think may be the reason*."

> **P10**: "*There are times when they start taking different tsabala (Holy water), and if they go to different churches, they stop saying that they are saved. But there are those who stay for a while and then come back when they get sick. I know a patient who lost and finally died in our village for a similar reason*."

5.4.5.1.1.5 Sub-theme 5: An explanation is that multiple drugs are difficult to take resulting in poor adherence to ART

Participants described perceived barriers faced by patients in managing multiple drugs, including poor adherence, gastric complications, and irritation. These challenges arise from a lack of assessment of perceived barriers related to gastric complications compared to the perceived benefits of ART drugs, further compounded by counselling gaps. This finding aligns with results from a study in Malawi on factors influencing adherence to antiretroviral treatment. Participants expressed concerns that side effects from ART initiation, such as vomiting, skin rashes, and jaundice, contributed to treatment discontinuation (Chirambo et al 2019:5). It underscores the importance of minimising pill burdens to promote adherence to ARV medication.

Two participants were quoted saying:

> **P3:** "*The problem is that it is difficult to take many medications at a time when you have given many drugs at once. Beyond that, there is no problem*."

> **P10**: "*I haven't had any problems. I had a little headache until I learned about it.*

There may be many pills given on that date that have an effect on the stomach."

5.4.5.2 Theme 2: Description of the life-style must be adopted by HIV+ patients

Participants outlined perceived barriers to lifestyle adjustments needed for those starting same-day ART. They highlighted the significance of abstaining from substance abuse and incorporating regular physical exercise. Moreover, participants suggested strategies to mitigate challenges encountered during treatment. The sub-themes within this theme were comprehensively explored, as follows:

5.4.5.2.2 Sub-themes

5.4.5.2.2.1 Sub-theme 1: Description of life-style activities adhered to by HIV+ patients

Participants discussed perceived barriers related to alcohol consumption among HIV-positive individuals. They noted a lack of awareness about the impact of alcohol on ART medication adherence and effectiveness. Despite occasional alcohol consumption among some patients, there is a notable absence of counselling on this issue. This oversight contributes to patients using alcohol without understanding its detrimental effects on ART potency and adherence. Effective counselling on alcohol use is crucial to ensuring optimal outcomes for ART treatment, as alcohol can significantly reduce the effectiveness of ARV drugs. A study conducted in Malawi on factors influencing adherence to antiretroviral treatment found that patients often forgot to take their medication after drinking alcohol (Chirambo et al 2019:5).

Four (4) patients were quoted saying:

P1: "*I never smoke, but I drink beer sometimes. Previously, I would have taken beer at lunch and in the evening, but now I am doing that in the evening only*."

P3: "*I have no history of drinking alcohol or using chat*."

P7: "*I drink drinks like tela and beer, though, occasionally*."

P10: *"…. I drink occasionally during holiday parties…"*

5.4.5.2.2.2 Sub-theme 2: Health education provided is beneficial to life-style modification and the promotion of quality of life

Participants highlighted perceived barriers related to health education and supportive services provided by healthcare providers. They emphasised that comprehensive health education plays a critical role in facilitating lifestyle modifications and enhancing the quality of life for HIV-positive individuals. Additionally, they underscored the importance of access to physical activities, nutritional support, and assistance with transportation costs. Participants suggested that addressing these perceived barriers through the better provision of resources and support from healthcare facilities and government entities could substantially improve patient outcomes.

Three (3) participants were quoted saying:

> **P1:** "*I always get up at 11 a.m. to feed my cattle. I consider this a physical exercise. Beyond that, I do not have any physical activities*."
>
> **P3:** "*Personally, I haven't received such an education*."
>
> **P10**: "*I think they should start as soon as the physician tells them to do that. There may be special support required for some patients, like food, clothing, or transportation. I think the government can arrange such facilities for treatment to be successful*."

5.4.5.2.2.3 Sub-theme 3: Strategies employed to get help when experiencing challenges are outlined

Participants discussed perceived barriers faced by patients in accessing support during challenges related to same-day ART initiation and HIV disclosure. They highlighted that many patients lacked contact information for their healthcare providers, with only a few familiar with their providers' names. This barrier hindered their ability to seek timely assistance and support. Participants emphasised the critical need for improved access to healthcare providers' information, underscoring its importance in addressing issues related to care and treatment effectively.

Four (4) participants were quoted saying:

P3: "*I understand that knowing the address is important, but I didn't realise it, and they also didn't provide it to me. I don't know why. I will ask for the contact address on my next visit, and thank you for letting me know that*."

P6: "*I get many healthcare providers, but I don't know their name or role except that the doctor provides me the medication*."

P7: "*There are many healthcare providers. I only know the name of one who provided me with counselling and supported me in searching for my file*."

P9: "*I didn't go looking for their contact information so much because I thought I could easily go and find them if I had a problem*."

5.4.5.2.2.4 Sub-theme 4: Provision of in-depth counselling by HCP and content thereof outlined by HIV+ patients

Participants highlighted perceived barriers faced by patients related to counselling before initiating ART. They emphasised the importance of comprehensive counselling provided by skilled healthcare providers to ensure patients are adequately prepared and willing to accept medical advice. The discussion revealed shortcomings in counselling content and healthcare providers' skills, suggesting areas for improvement in delivering effective support to HIV-positive individuals.

One (1) participant was quoted saying:

P4: "*I believe it is better if people consider it before beginning ART, because interruption is dangerous. I advise enough counselling with skilled care providers, and patients should also be ready and decide to accept their healthcare care providers' advice*."

5.4.5.3 Theme 3: Experiences of patients related to SDI-ART for viral suppression and retention of care

This theme covers several key aspects: the perceived benefits by patients participating in the interview regarding SDI-ART, their initial experiences with SDI-ART, including health education, personal lifestyle factors affecting disease prognosis, and the contrast

between ART adherence and lack thereof. Additionally, participants' perceived benefits in terms of viral suppression and retention in HIV care for those starting same-day ART are explored through the four sub-themes outlined below.

5.4.5.3.3 Sub-themes

5.4.5.3.3.1 Sub-theme 1: An explanation of the various benefits experienced by patients related to SDI-ART

Participants highlighted the perceived benefits of same-day ART initiation during interviews. They commonly cited improved health as a significant advantage of starting ART the same-day. As HIV treatment advances, there is a noticeable decrease in morbidity and mortality associated with the virus. Participants recognized that same-day ART initiation not only benefited themselves but also their families. They noted that counseling provided valuable support for medication adherence.

Four (4) participants were quoted saying:

> **P1:** "*It has many benefits; I am healthy; that is the benefit of the drug. I started on the same-day based on my physician's counselling. I am taking the drug now, properly*."
>
> **P2:** "*I think its benefit is being healthy. I advise starting on same-day ART, if not possible in one-month. It will harm more than this*."
>
> **P3:** "*They told me that unless I started immediately, my life was in danger. I accepted and started taking medication. The benefit is very high. I have gotten relief from the pain in my back. They have also provided me with additional medication in addition to ART. I think there is no greater benefit than being healthy*."
>
> **P4:** "*I think it is to save me and my husband and decrease mortality*."

5.4.5.3.3.2 Sub-theme 2: Explanation of the experiences related to the starting of SDI-ART

Participants emphasized the perceived benefits of same-day ART initiation, emphasizing the importance of health education, counseling, and abstaining from alcohol. The study's findings underscore that health education plays a crucial role in perceived benefits related to same-day ART initiation, medication adherence, and retention in HIV care. Supporting this, a concurrent study in Uganda on the determinants of lost to follow-up among HIV-positive patients receiving antiretroviral therapy in a test-and-treat setting found that clinic-based health education significantly improved drug adherence (Kiwanuka, Mukulu Waila, Muhindo Kahungu, Kitonsa & Kiwanuka 2020:13). Similarly, research from South Africa on patient perspectives of same-day ART initiation quality indicated that major challenges included lack of knowledge about HIV and ART, reluctance to change lifestyle, fear of side effects, food insecurity, and community stigma (Scott et al 2021:179).

Three (3) patients were quoted saying:

> **P1:** "*Healthcare providers told me to avoid drinking alcohol because it affects drugs. They gave me health education on this issue. I also know that alcohol has no benefit for anything. To my understanding, bad alcohol is local katikala (Arake) and cigar smoking. I am not aware of any beer impact on ARV*."
>
> **P3:** "*I got long-term counselling on the first day only. After that, I haven't received any counselling in subsequent follow-up. I remember one day when massive health education was given in the waiting area for all patients*."
>
> **P4:** "*Yes, there is massive education beyond that no… The nurse has told me to use food before taking medication, to use only cooked foods, to avoid drinking any alcohol, etc*."

5.4.5.3.3.3 Sub-theme 3: Explanation related to one's own life-style that might affect the disease prognosis is described

Participants explained the perceived benefits of knowing their HIV status and the transformative impact of ART treatment on their lives. They highlighted how community beliefs and personal perceptions often lead to misconceptions about HIV transmission,

such as through everyday activities like talking and eating with HIV-positive individuals. These misconceptions contribute to stigma and discrimination against ART patients, which significantly contributes to lost follow-up and low retention in HIV care, ultimately influencing disease prognosis. Supporting this, a concurrent study in Malawi on factors influencing adherence to antiretroviral treatment among adults at private health facilities found that many clients hide their positive status from relatives or partners due to fear of stigma (Chirambo, Valeta, Banda Kamanga & Nyondo-Mipando 2019:5).

Two (2) participants were quoted saying:

> **P1:** "*I'm afraid of people, because they may discriminate in social life. Some people believe HIV can be transmitted by talking or eating with HIV patients. Generally, our community has no good ideas for us, so that is why I keep it secret*."

> **P5:** "*It is known that you will be ignored in social life. This is our perception and what we are looking at in the community. This affects you psychologically and socially because you will be isolated, which is painful*."

5.4.5.3.3.4 Sub-theme 4: Lack versus adherence to ART experienced and reasons thereof mentioned

Participants discussed the perceived benefits regarding the reasons why HIV-positive patients on ART might not adhere to their medication. Some participants mentioned that patients might be hesitant to disclose their status, while others were uncertain about the specific factors contributing to non-adherence. A concurrent study in Bangladesh on the barriers to antiretroviral therapy adherence among people living with HIV found that patients feared disclosing their status due to concerns about societal rejection and rejection by close family members (Hossain et al 2022:9).

Three (3) participants were quoted saying:

> **P2:** "*I don't know… I am taking my drug properly… I don't know why they lost*."

> **P3:** "*Really, I don't know the person who lost from care but I think people lost from care due to long-termmedication*."

> **P5:** "*I am not sure, but I think it is due to the daily medication people may bore to*

take. That is the reason I suspected, based on my experience. The second lack of disclosure is due to a fear of stigma. This is what I think may be the reason."

5.4.5.4 Theme 4: Knowledge held by patients related to the SDI-ART programme

Participants shared their perceived benefits regarding their experiences as newly diagnosed HIV-positive individuals. They discussed their understanding of ART treatment, their interactions with healthcare providers, their awareness of the consequences of non-adherence, and the significance of same-day ART initiation. The specifics of their knowledge and experiences with same-day ART initiation in the context of chronic HIV care are detailed below. The sub-themes within this topic were extensively discussed, as follows:

5.4.5.4.4 Sub-themes

5.4.5.4.4.1 Sub-theme 1: Lack versus existence of knowledge related to years of being diagnosed with HIV

Participants discussed the perceived benefits, based on their interviews, of realizing their lack of awareness about their HIV status. They explained that they discovered their HIV-positive status unexpectedly during visits to healthcare facilities for unrelated reasons. Many participants mentioned being diagnosed with HIV during antenatal care (ANC) and had previously been unaware of their positive status.

Two (2) patients were quoted saying:

P2: "*I knew by chance when my wife gave birth. It was unfortunate, not intentional. Both me and my wife became HIV-positive on the same-day. And we started on ART on the same-day*."

P5: "*I get about four healthcare providers in the ANC room. Monthly, two of them are those who support me in counselling. Currently, I am pregnant. Previously, I got service in other units, but now in the ANC care follow-up unit, there are many people I get service from, including those who provide me with ARV drugs. There are people who provide me with counselling on the medication, and I have also asked them questions. They supported me. Currently, I am visiting the healthcare*

facility every three months."

5.4.5.4.4.2 Sub-theme 2: Lack of knowledge related to the treatment the patient is taking

Participants discussed the perceived benefits regarding patient knowledge about their HIV treatment. They reported that a majority (80%) of patients were unaware of the specific ARV drug they were receiving, knowing only the administration schedule. This lack of knowledge was perceived to impact adherence, which participants attributed to insufficient counseling provided by healthcare providers. This finding aligns with a study conducted in the East Gojjam Zone, northwest Ethiopia, which identified barriers and facilitators of same-day antiretroviral therapy initiation among newly diagnosed HIV patients. The study revealed that health professionals often prescribe ART without adequate adherence preparation (Moges et al 2020a:1808). According to Moges et al (2020a:1808), health professionals are evaluated based on the number of new clients starting ART each month; if they do not start treatment, they face criticism even at the district level. Focusing on the number of patients initiated on same-day ART without proper preparation compromises service quality and leads to lost to follow-up.

Two (2) patients were quoted saying:

P1: "I take two types of drugs, one at lunch and the other in the evening, one tablet each day."

P2: "Sorry, I don't know the name of the drug. I take it at night only."

5.4.5.4.4.3 Sub-theme 3: Lack of knowledge of health care providers affects the patient's consultation

Based on the perceived benefits expressed by patients, they pointed out significant knowledge gaps between themselves and healthcare providers. They noted uncertainty about whom to consult for issues related to ART treatment, which stems from factors such as a shortage of healthcare providers, strained patient-provider relationships due to heavy workloads, and inadequate training among providers. Consequently, patients often only know the names of their healthcare providers. This finding is supported by a study conducted in Malawi on factors influencing adherence to antiretroviral treatment, which

reported that some ART providers are not well-trained and may not provide adequate information, leaving clients unsure of what to do when problems arise (Chirambo et al 2019:8).

Three (3) participants were quoted saying:

> **P4:** "*I don't remember their name, but they have informed me. Hahaha..."*
>
> **P7**: "*There are many healthcare providers. I only know the name of one who provided me with counselling and supported me in searching for my file*."
>
> **P10:** "*I don't know its name. I used to take it at three o'clock in the evening, and I collected it every month, but now I collect it every six months*."

5.4.5.4.4.4 Sub-theme 4: Existence versus lack of knowledge related to HIV the disease condition and related maters described

Based on the perceived benefits expressed by patients, they described their prior knowledge regarding HIV and its relation to same-day ART initiation. They explained that a lack of knowledge affected their understanding of the disease and ART medication. This gap in understanding was attributed to perceived barriers related to HIV and ART, as well as the quality of counseling provided by healthcare providers.

Two (2) participants were quoted saying:

> **P1:** "*I am now healthy thanks to same-day ART. My medication is still being delivered to me. I've seen patients drop out of care due to a lack of understanding about the nature of HIV; perhaps this is a disadvantage of same-day ART initiation*."
>
> **P4:** "*This is due to a lack of knowledge regarding HIV transmission methods. HIV will not be transmitted by eating together; it depends on people's knowledge, education, etc. But people isolate you, even when they walk with you. I think that was the reason*."

5.4.5.4.4.5 Sub-theme 5: Existing versus lack of knowledge of the consequences of a lack of adherence to treatment

Based on the perceived benefits expressed by patients, they explained that non-adherence to medication is influenced by fear of stigma, drug side effects, inadequate counseling from healthcare providers, and a lack of awareness. They perceived these challenges as arising from insufficient counseling during ART initiation and follow-up sessions, which were attributed to the heavy workload of healthcare providers and gaps in their counseling skills. Similar findings from a study conducted in Malawi on factors influencing adherence to antiretroviral treatment revealed that poor adherence to ART medications is linked to fear of disclosure, drug side effects, weak relationships with healthcare workers, and inadequate counseling (Chirambo et al 2019:10). This highlights the perceived benefits of comprehensive counseling and strong patient-provider relationships to support adherence.

Two (2) participants were quoted saying:

> **P4:** "*This is due to a lack of knowledge regarding HIV transmission methods. HIV will not be transmitted by eating together; it depends on people's knowledge, education, etc. But people isolate you, even when they walk with you. I think that was the reason*."

> **P6:** "*I think lack of HIV awareness may be a fear of stigma*."

5.4.5.4.4.6 Sub-theme 6: Existence of knowledge related to the importance of SDI-ART explained

Based on the perceived benefits expressed by patients, they emphasized the significance of same-day ART initiation for maintaining health, productivity, and saving lives. Although only three out of ten participants had prior knowledge of the importance of starting same-day ART, all participants recognized the perceived benefits of same-day ART initiation. These benefits included improved health outcomes, reduced treatment costs, and decreased mortality and morbidity rates.

Three (3) participants were quoted saying:

> **P8**: "*It's effective because if you started before the virus multiplied in your body. It*

also helps you be careful to get back too many things."

P9: "*Starting ART on the date of the test benefits me by making me alive, healthy, and productive. I know many people who have died of unknown causes in my neighbourhood. I realised that it was HIV because of the lack of testing and medication. So it has many benefits*."

P10: "*It helped me to be healthy. It saves costs for treatment because I have visited many private clinics, and in that regard, I have lost time and money for treatment. So I have saved this cost*."

5.4.5.5 Theme 5: Suggestions made by newly diagnosed patients related to the SDI-ART programme

Participants suggested that enhancing support for newly diagnosed HIV-positive patients, improving adherence to ART medication, exploring potential future medications, and ensuring comprehensive counseling for patients are crucial cues to action. The sub-themes within this theme were thoroughly examined, as follows:

5.4.5.5.1 Sub-themes

5.4.5.5.1.1 Sub-theme 1: The support for SDI-ART HIV+ patients and the reasons thereof are described

Patients interviewed in this study emphasized that cues to action, such as same-day ART initiation, require substantial support. They highlighted the necessity of support from close family, friends, and healthcare providers to facilitate recovery, which can streamline treatment processes and reduce costs. The study findings underscore the importance of completing counseling and disclosure before ART initiation, along with providing ongoing psychological support until patients are stable and prepared to start ART. A concurrent systematic qualitative study by Boston University on why people living with HIV do not begin treatment revealed that many patients believed that starting ART would increase the visibility of their HIV status, increasing the chances of disclosure and putting them at risk of externalised stigma, which could lead to rejection by current partners, peers, family, and community members (Ahmed, Autrey, Katz, Fox, Rosen, Onoya, Bärnighausen,

Mayer & Bor 2018:76).

Two (2) participants were quoted saying:

> **P8**: "*I think time is required to initiate patients on ART. For example, I was subjected to various stresses that made me HIV-positive. If my younger sister was not with me, I would not have started it. Starting the medication on that date supported me in recovering from the illness, and my being alive today is the result of the medication*."

> **P10:** "*I think it is good for the patient to recover from their illness. I got relief after I started the medication. So, it supports your health and saves time and money that you might use for other treatments. It is given free of charge and is a good opportunity for patients to get treatment on time. It can be used to suppress the virus in the body, which helps patients be healthy*."

5.4.5.5.1.2 Sub-theme 2: One pill is suggested to promote adherence to treatment

Participants identified several cues to action to enhance adherence to ARV drugs. Suggestions included providing ART in the form of injections or a single pill to simplify the regimen. One participant proposed a weekly ART medication option to support adherence. Currently, some patients need to take multiple pills daily for specific ART regimens. Streamlining the regimen to a single pill or injection could decrease missed doses and help mitigate stigma and discrimination. Additionally, allowing patients to take their medication at night, where feasible, may further address concerns related to stigma. A concurrent study conducted in the United States on the challenges of antiretroviral therapy beyond a single pill revealed that long-acting antiretroviral therapies, such as parenteral agents, implants, and patches, offer promising alternatives for individuals who struggle with daily pill-based regimens (Masters, Krueger, Williams, Morrison & Cohn 2019:13).

One (1) participant was quoted saying:

> **P7**: "*… it is better if the drug is given in … one pill per week*."

5.4.5.5.1.3 Sub-theme 3: Injectables are suggested to promote adherence to treatment and to promote privacy

Participants identified administering ART in the form of injections as a significant cue to action to improve patient adherence to ARV drugs. A concurrent study conducted in the United States on the potential benefits of long-acting antiretroviral therapy noted that long-acting injectable therapy offered convenience, increased confidentiality and privacy, and reduced opportunities for stigma, discrimination, or inadvertent disclosure of HIV status associated with daily pill-taking (Scarsi & Swindells 2021:6).

Two (2) participants were quoted saying:

> **P3:** "*I don't know. hahahaa... I'd prefer it if it came in the form of an injection. That may be once a week or once a month.*"

> **P7**: "*I have no idea, but it is better if the drug is given in injection …*"

5.4.5.5.1.4 Sub-theme 4: In-depth counselling to promote positive uptake and adherence to SDI-ART is suggested

Participants highlighted cues to action by advocating for comprehensive counseling to enhance both ART service uptake and adherence. They stressed the critical role of receiving adequate counseling from skilled healthcare providers as a pivotal intervention to improve adherence to ART medication. A concurrent study conducted in South Africa on patient perspectives of same-day antiretroviral therapy initiation highlighted that receiving all health services in one location, in a private setting, and without long wait times made the ART initiation process smoother and enhanced retention in care (Scott et al 2021:184).

Three (3) participants were quoted saying:

> **P1:** "*I don't know their names. For example, the providers I got today are new to me. There are other providers I get who always encourage me to take my drugs and give me counselling*."

> **P4:** "*I believe it is better if people consider it before beginning ART, because interruption is dangerous. I advise enough counselling with skilled care providers,*

and patients should also be ready and decide to accept their healthcare care providers' advice."

5.3 SUMMARY

Based on the findings of this study, insights from physicians, nurses, case managers, adherence supporters, and patients regarding same-day antiretroviral therapy (ART) initiation shed light on the real-world status of viral suppression and retention in HIV care. Participants actively engaged in discussions, sharing their perspectives on the benefits, challenges, current practices, and future strategies related to same-day ART initiation to enhance service quality and meet global targets in HIV care and treatment programmes. They emphasised the importance of implementing strict control measures and enforcing developed strategies in line with established protocols to ensure continued service provision. The conclusions drawn from the findings are presented in Chapter 8, while the subsequent chapter delves into the results of the quantitative phase.

CHAPTER 6
PHASE 2: QUANTITATIVE APPROACH

6.1 INTRODUCTION

Chapter 5 focused on discussing the data analysis conducted during the qualitative phase. In this chapter, the emphasis is placed on presenting, analysing, and interpreting the results obtained from the quantitative phase. The design of this phase was cross-sectional, descriptive, and involved retrospective document analysis. The quantitative phase aimed to evaluate the status of same-day ART initiation, patient retention in HIV care, and viral suppression at healthcare facilities in Ethiopia. A checklist was used for data collection to address the research objectives. Further details regarding data management and analysis, results presentation, and interpretation are provided below.

6.2 DATA MANAGEMENT AND ANALYSIS

Data analysis is defined as an iterative process of manipulating and interpreting numbers to extract meaning from them to answer research questions, test hypotheses, or explore meanings that can be derived inductively from the data (Mertens 2017:1). Cleff (2019:13) also explained that the purpose of data analysis is not the analysis itself but rather the communication of findings in an audience-appropriate manner. According to Cleff (2019:13), only findings that are understood and accepted by decision-makers can affect decisions and future reality. The goal of data analysis was to communicate the results for decision-making. In this study, strategies were developed for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms.

According to Gliner, Morgan, and Leech (2017:9), quantitative data analysis involves various methods for coding, categorising, and deriving meaning from numeric data, often involving the calculation of statistical measures. In this study, data were extracted from the smart care database, with the researcher utilising 332 clinical records for analysis. A checklist served as the instrument for capturing the clinical data of patients who initiated same-day ART (refer to Annexure 36 for the Phase 2 data collection checklist). The

services of a statistician were employed for verification of the data analysis process (refer to Annexure 39 for proof of quantitative data analysis certificate). The collected data were then entered into SPSS version 28 for analysis. To ensure accuracy and quality, a comprehensive cleaning and preparation process was conducted prior to analysis. This involved checking for errors, missing values, data quality, consistency, suitability, and inconsistencies, which were identified and rectified before proceeding with the analysis.

This process included handling missing data through correction from the checklist, detecting and treating outliers, coding and recoding variables for uniformity, transforming variables to meet analysis requirements, combining and restructuring data from different sources, conducting validation and consistency checks, standardising and formatting data for consistency, and documenting the entire process for transparency and reproducibility. The data was analysed using descriptive and inferential statistics. Furthermore, the Chi-square test and logical regression were used for data analysis. Descriptive statistics were employed to summarise key characteristics of the study population, including demographics, treatment initiation status, retention in HIV care, and viral suppression. With the assistance of a statistician, the researcher used frequencies and percentages to summarise the results using tables and graphs.

Inferential statistics are statistical techniques used to generate estimates or inferences about the characteristics of interest for a population using the data from a sample data set (McNabb 2021:78). Among inferential statistics, the logistic regression model was employed in testing the collaboration between gender, age, marital status, educational background, religion, patient's address, history of opportunistic infections at enrolment, WHO stage at enrolment, ARV adherence during the last follow-up, and disclosure of HIV status at enrolment on the retention of individuals in HIV care. Logistic regression is similar to multiple logistic regression, except it is used to predict group membership in a category rather than predicting a value on a criterion variable measured on an interval or ratio scale (Rosenstein 2019:126). In this analysis, a significance level of $p<0.05$ was employed to ascertain the significance of the independent variables.

The Chi-square test was employed to evaluate the relationships between gender, age,

WHO stage, residential type, retention status, functional status, and disclosure status with viral load suppression. This statistical approach is well-suited for examining associations among categorical variables, as suggested by Kothari and Garg (2019:235). In the analysis using the Chi-square test, a significance level of $p < 0.05$ was utilised to indicate a significant association between viral suppression and the selected variables in this study. The results were depicted in tables and graphs, with data from both Healthcare Facility 1 and Healthcare Facility 2 combined during the presentation. The discussion of the results was guided by the research objectives and the sequential order of data collection outlined in the checklist (refer to Annexure 36 for Phase 2 data collection checklist), ensuring a coherent presentation of results leading to conclusions regarding patient retention and viral suppression at healthcare facilities in Ethiopia. The analysis was structured according to the sections outlined in the checklist, as follows:

6.2.1 Section A

This section provides a comprehensive understanding of the patients and allows for demographic profiling, examination of potential relationships with other variables, and spatial analysis. It addressed key demographic and contact information for the patients. It included age, sex, marital status, religion, educational level, patients' address (urban or rural), whether the participant has a phone number, whether the participant's kebele was documented, and whether the participant's house number was documented.

6.2.2 Section B

Section B of the data collection checklist addressed important clinical and laboratory information at baseline for patients collected from clinical records. It included patients' history of opportunistic illness, types of opportunistic infections, baseline weight and height, functional status, WHO clinical staging of HIV, patients' HIV disclosure status, patients' CD4 cell count at baseline, and the actual CD4 value at baseline. These variables provided insights into patients’ health conditions, immune status, disease progression, and relevant aspects that might influence ART treatment retention in care and viral suppression.

6.2.3 Section C

Section C of the data collection checklist addressed same-day ART initiation status-related information, viral load results, and viral suppression-related data. This section included HIV testing and diagnosis unit, ART initiation date, last follow-up date, current HIV care status, viral load measurements at 6 months, 12 months, and 24 months, ART regimens at initiation, dispensing dose at initiation, regimen changes and reasons, last follow-up ARV regimen and adherence, dispensing dose at last follow-up, history of receiving other drugs in addition to ART, weight and height at last follow-up, functional status at last follow-up, WH/treatment staging at last follow-up, TB screening and treatment history, opportunistic infections at last follow-up, cotrimoxazole (CPT) history, patient's HIV prevention plan, and the HIV prevention plans of the patients. This section also provided crucial information on treatment progress, viral load monitoring, medication adherence, co-occurring conditions, and an HIV prevention plan for the patient and family.

6.3 PRESENTATION AND INTERPRETATION OF THE RESULTS

In this section, the researcher presented results that pertained to patients who had initiated same-day ART at two healthcare facilities. The analysed data was retrieved from patients' clinical records stored in the smart care database. These results were presented in three (3) parts.

Part 1 presented descriptive statistics;

Part 2 presented the results of the Chi-square test of the association of variables; and

Part 3 presented a logistic regression analysis.

6.3.1 Part 1: Presented descriptive statistics

6.3.1.1 Section A: Demographic information

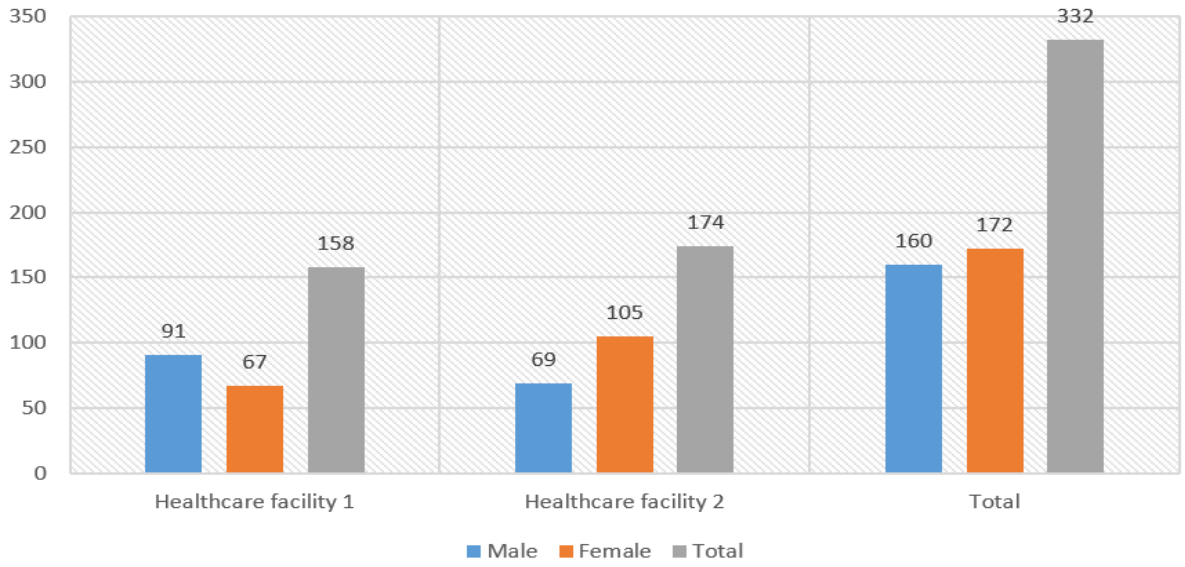


Figure 6. 1: **Sample distribution by healthcare facilities (N=332)**

The demographic data that was analysed in this study encompassed various variables, including the patient's age, sex, marital status, religion, education, and residential area. These demographic characteristics were presented and interpreted extensively in relation to the research objectives. In Phase 2 of the study, which focused on quantitative analysis, data was collected from two specific healthcare facilities. A total of 332 clinical records were utilised for the data analysis in this phase. Among these records, 91 males and 67 females totaling 158 were obtained from Healthcare Facility 1, while 69 males and 105 females totaling 174 were obtained from Healthcare Facility 2 (refer to Figure 6.1). The distribution of the sample aligned with the respective health facilities ensured representation from each facility. The details of Section A data analysis were discussed as follows:

6.3.1.1.1 Age of patients (N=332)

Table 6.1: Frequency distribution of the age of patients (N=332)

Age category	Frequency (N)	Percentage (%)	Cumulative percent
18-24 years	39	11.7	11.7
25-34 years	98	29.5	41.3
>35 years	195	58.7	100
Total	**332**	**100**	

Data regarding age was collected by year, and for the purpose of data analysis, the age variable was reorganised into three distinct age categories with the consultation of a statistician, as indicated in Table 6.1. Results in Table 6.1 indicated that the majority of the patients, 58.7% (n=195), were over 35 years old, 29.5% (n=98) were in the age range of 25-34 years, and the minority, 11.7% (n=39), were in the range of 18-24 years. These results implied that there was a correlation between age and HIV prevalence, meaning that as age increased, there was a corresponding increase in the prevalence of HIV among the patients. This observation highlighted the importance of considering age as a major aspect in planning HIV infection prevention, care, and treatment.

A study that concurred with this study was conducted in Sub-Saharan Africa on same-day ART initiation as a predictor of lost to follow-up and viral suppression among people living with HIV, illuminated that the majority, 52.2% (n=9702), of patients were over 34 years old. As such, the results of this study differed from those a study conducted in Ethiopia on same-day ART initiation and associated factors among HIV-positive individuals in Northwest Ethiopia, which noted that the majority, 46% (n=350) of patients were between 25 and 34 years of age, which indicated that a majority of patients were below 35 years of age compared to this study, which was over 35 years old (Moges et al 2020b:6).

6.3.1.1.2 Gender (N=332)

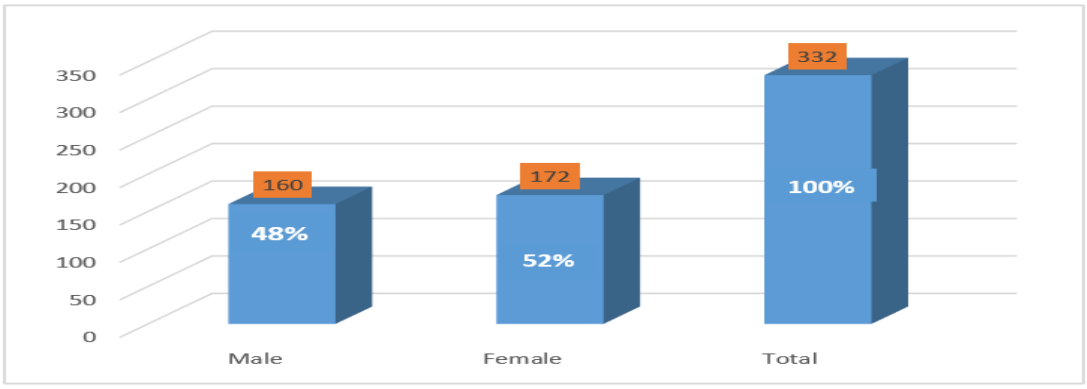


Figure 6. 2: **Gender (N=332)**

As indicated in figure 6.2, females were 52% (n=172) and males were 48% (n =160). The results showed that females were more likely than men to be enrolled in same-day ART initiation. These results also implied that females had a higher prevalence of HIV infection compared to males due to their increased vulnerability in relation to males. A study that concurred with this study was conducted in South Africa on the same-day initiation of antiretroviral therapy for HIV-infected individuals, revealed that female enrolment was 74.1% (n=9663), while males about 25.9% (n=3375) (Lilian et al 2020b:6). In contrast to this study, a study was conducted in Addis Ababa, Ethiopia, on antiretroviral therapy service quality and associated factors at public hospitals revealed that a higher proportion of male patients, 67.1% (n=282), were enrolled as compared to female patients, which was 32.9% (n=138) (Tiruneh & Woldeyohannes 2022:134).

6.3.1.1.3 Marital status (N=332)

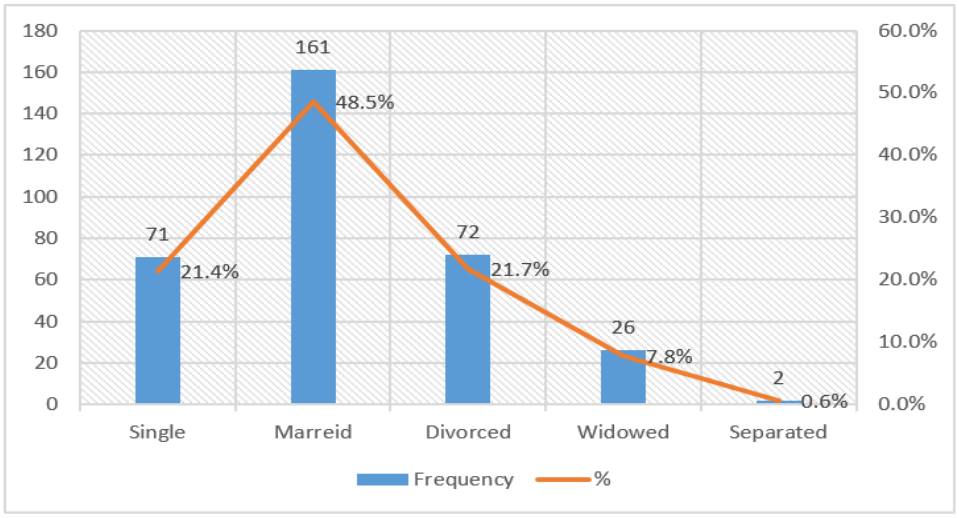


Figure 6. 3: Marital status (N=332)

Figure 6.3 above illustrates that the majority, 48.5% (n=161) of patients, were married. These results indicated that the prevalence of HIV among married couples was high due to a lack of HIV testing prior to and during marriage. A study that concurred with this study was conducted in Ethiopia on pre-marital HIV testing among married women, revealed that only 21.4% (n=2142) of the married couples had undergone pre-marital HIV testing (Birhanu, Ketema, Desta, Habtegiorgis, Mengist, Alamneh, Abeje, Tegegne, Mengist, Dessalegn & Bekele 2023:4). In contrast with this study, a study was conducted in Eswatini, focused on the impact of same-day ART initiation under the World Health Organization's treat-all policy, found that the majority, 69.2% (n=566) of patients on same-day ART were not married (Kerschberger, Boulle, Kuwengwa, Ciglenecki & Schomaker 2021:1522).

Furthermore, the results showed that patients who divorced were 21.7% (n=72), while those who had never been married (single) were 21.4% (n=71), and widowed patients were 7.8% (n=26). The results implied the relevance of considering marital status as a potential factor in HIV care and treatment approaches. The observed variations in percentages across different marital statuses emphasised the need for tailored support and interventions that addressed the diverse emotional, psychological, and social needs

of patients based on their marital experiences.

A study that concurred with this study was conducted at Nekemte Specialised Hospital in Western Ethiopia and focused on same-day ART initiation and associated factors, revealed that 19.88% (n=96) were singles, 5.8% (n=28) were widowed, and 13% (n=63) were divorced (Bayisa, Bayisa, Turi, Mulisa, Tolossa, Akuma, Bokora & Rundasa 2023:14). However, this study's results differed from those of a study conducted in urban Ethiopia across nine regional states which focused on universal HIV testing and the effect of late diagnosis on disease stage among adults. The results showed that the widowed were only 3.8% (n=794) lower compared to this study's results which were 7.8% (n=26) (Getaneh, Ayalew, He, Tayachew, Rashid, Kassa, Leulseged, Liao, Yi & Shao 2023:5).

6.3.1.1.4 Religion (N=332)

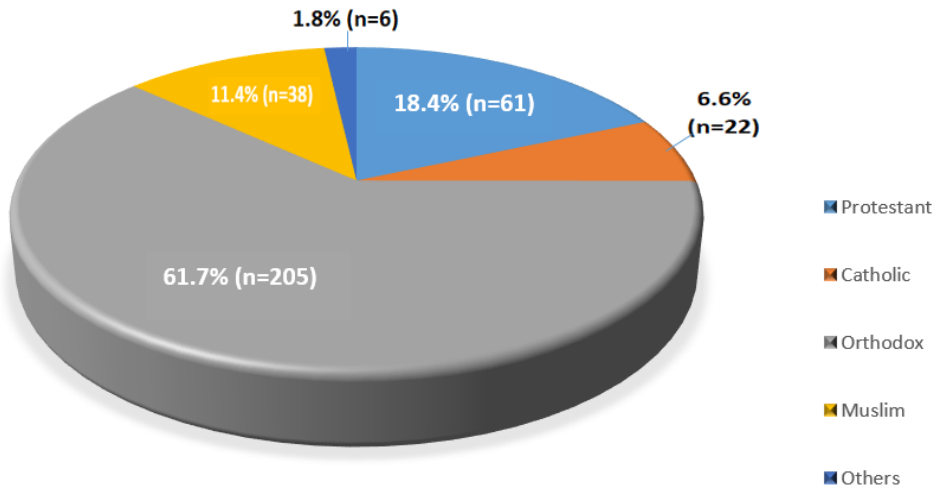


Figure 6. 4: **Religion (N=332)**

Figure 6.4 above illustrated the participant's religion and indicated that the majority, 61.7% (n=205), were Orthodox Christians, 18.4% (n=61), were Protestants, 11.4% (n=38), were Muslims, 6.6% (n=22), were Catholic, and the minority, 1.8% (n=6), belonged to other religious groups. These results implied that it was beneficial to collaborate with religious leaders and institutions, particularly within the Orthodox Christian, Protestant, Muslim, and Catholic communities, as they could have played a

pivotal role in promoting HIV awareness. Furthermore, these results showed targeted HIV prevention education programmes might have needed to be designed to ensure effectiveness in reducing HIV transmission and stigma in the community, with more focus on leaders of the Orthodox Christian religion.

A study that concurred with this study was conducted in Northwest Ethiopia on same-day ART initiation and associated factors, reported that the majority, 94.70% (n=719), identified as Ethiopian Orthodox Christians, 4.3% (n=33) were Muslims, and the minority, 0.9% (n=7) were Protestant religion followers (Moges et al 2020b:5). In contrast to this study, a study was conducted at Nekemte Specialised Hospital in Western Ethiopia, focused on same-day ART initiation and associated factors, found that the majority, 46.17% (n=223), were Protestant, 42.65% (n=206) were Orthodox Christians, 9.52% (n=46) were Muslims, and the minority, 1.66% (n=8), were Catholic followers (Bayisa et al 2023:14).

6.3.1.1.5 Educational level (N=332)

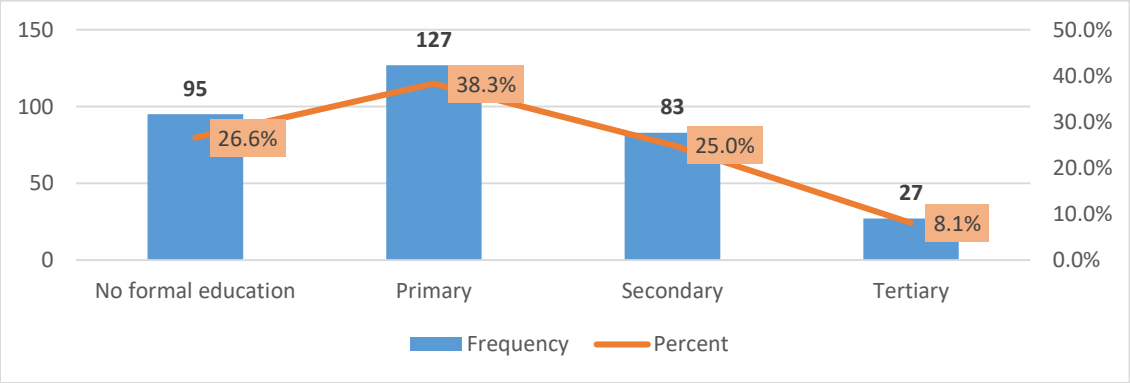


Figure 6. 5: **Educational level (N=332)**

Figure 6.5 above indicates that the majority, 38.3% (n=127), had primary education, 26.6% (n=95), had no formal education, 25% (n=83), had secondary education, and the minority, 8.1% (n=27), had tertiary education. These results revealed that HIV prevalence was high in patients who had no formal education or primary education. This might pose challenges for ART medication adherence. Furthermore, the results demonstrated a

notable trend: as the level of education increased, HIV prevalence decreased. This trend might imply a potential positive impact on medication adherence and could contribute to enhanced HIV prevention efforts and retention in HIV care.

A study that concurred with this study was conducted in Masaka, Uganda, on factors related to lost to follow-up (LTFU) among HIV-positive patients receiving ART, revealed that patients with no formal education had a higher risk of lost to follow-up compared to those with a post-secondary education level (AHR = 0.50; 95% CI, 0.34–0.75) (Kiwanuka et al 2020:6). In contrast with this study, the study conducted in Togo on health-related quality of life among people living with HIV, revealed that the majority, 45.4% (n=399), had secondary and higher education, 37% (n=326) had primary education, and the minority, 17.6% (n=155), had no education, which showed that the majority of patients had secondary and higher education compared to this study (Yaya, Djalogue, Patassi, Landoh, Assindo, A, Nambiema, Kolani, Patchali, BignandiDiallo & Ekouévi 2019:4).

6.3.1.1.6 Patients address (N=332)

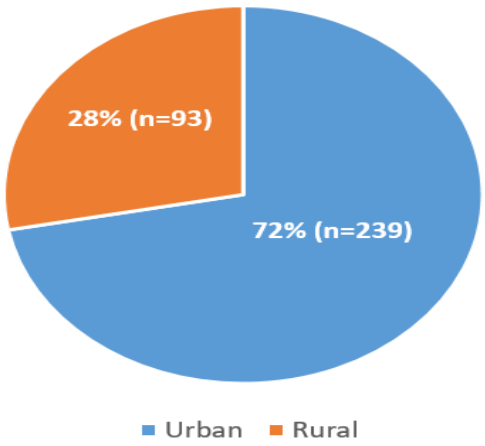


Figure 6. 6: **Address of patients (N=332)**

Figure 6.6 reflected that the majority, 72% (n=239), were from urban areas, while the minority, 28% (n=93), of patients were from rural areas. These study results showed that the significance of considering the geographic location and proximity to healthcare facilities in HIV care and treatment plays an important role. The patient's address helped

healthcare providers determine the accessibility of healthcare services, ensuring that lost to follow-up tracing, family member HIV testing, home-based counselling, treatment support, and other support programmes were available and easily accessible based on the patient's location.

A study which concurred with this study was conducted in Sub-Saharan Africa on same-day ART initiation as a predictor of lost to follow-up and viral suppression among people living with HIV and revealed that the majority, 74.4% (n=21,186) patients, were from urban areas, while the minority, 25.6% (n=7431), were from rural areas (Ross, Brazier, Fatti, Jaquet, Tanon, Haas, Diero, Castelnuovo, Yiannoutsos, Nash & Anastos 2022:23). In contrast with this study, a study was conducted in the West region of Cameroon on time to ART initiation, and factors associated with same-day initiation revealed that the majority, 76.5% (n=2335), of patients were semi-urban while the minority, 23.5% (n=781), were from urban areas (Nembot, Wirsiy, Tshimwanga, Nkfusai, Eveline, Esa, Kum, Agbor & Ateudjieu 2022:7). As such, the results of this study also differed from the study conducted at the Uganda Cancer Institute on adherence to antiretroviral and cancer chemotherapy, and associated factors among patients with HIV–cancer co-morbidity revealed that the majority, 55.5% (n=111), were from rural areas and the minority, 44.5% (n=89) were from urban areas (Achieng, Bunani, Kagaayi & Nuwaha 2023:4).

6.3.1.1.7 Patients phone number address status (N=332)

Table 6.2: Phone address status (N=332)

Phone number status	Male		Female		Total	
	Frequency (N)	Percentage (%)	Frequency (N)	percentage (%)	Frequency (N)	percentage (%)
Yes	141	42	153	46	294	89
No	19	6	19	6	38	11
Total	**160**	**48**	**172**	**52**	**332**	**100**

Table 6.2 above details the phone number status of patients who began same-day ART. The study revealed that the majority, 89% (n=294), had their phone numbers documented. Among these patients, 46% (n=153) were female and 42% (n=141) were male. These findings suggest that most patients could be contacted if lost to follow-up

through their phone numbers, with female patients being more likely than male patients to have their phone numbers documented. Having phone numbers significantly enhances efficient communication for appointment reminders, the delivery of viral load test results, and support for medication adherence. Additionally, during challenging times like the COVID-19 pandemic, when mobility was restricted, phone numbers were crucial for facilitating counselling and delivering medications to patients' homes.

A study conducted in Kampala, Uganda, which aligned with the findings of this research, examined factors associated with retention and non-viral suppression among HIV-positive patients on ART. The study found that the majority, 94.2% (n=259), had a phone number, while only 5.8% (n=16) did not (Atuhaire, Shumba, Mapahla & Nyasulu 2022:5).

6.3.1.1.8 Patients kebele (N=332)

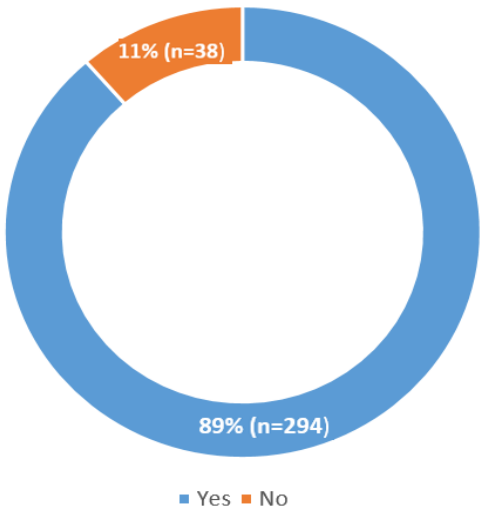


Figure 6. 7: **Kebele of patients the study (N=332)**

In Ethiopia's federal system, the kebele serves as the smallest local administrative unit (FHAPCO 2020:17). Kebele is a specific patient's address that could be documented on the patient's follow-up form and folder. In the context of chronic HIV care and treatment, documenting the kebele becomes crucial for home-to-home service visits, particularly for tracing patients lost to follow-up and providing necessary home-based care. Figure 6.7 indicated that the majority, 89% (n=294), had documented kebele information, while the

minority, 11% (n=38), did not have kebele information documented. These results implied that the majority of patients have their kebele information documented and that they could be easily located for home-to-home tracing if they were to discontinue their HIV care.

6.3.1.1.9 Patients with house number (N=332)

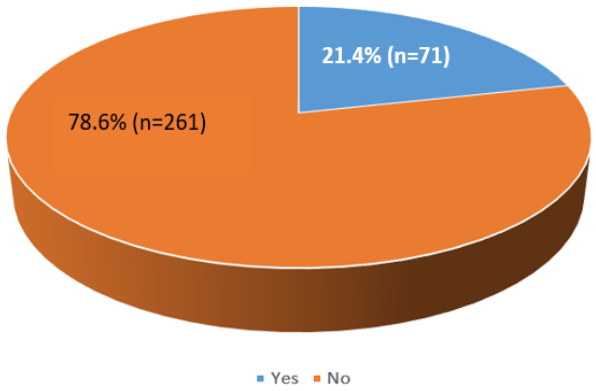


Figure 6. 8: **House number related information of patients (N=332)**

Figure 6.8 showed that the majority, 78.6% (n=261) of patients, had a registered house number, and the minority, 21.4% (n=71), of patients did not. These results implied that the majority of patients did not have their exact location documented or house number, which played a role in home-to-home tracing for those lost from HIV care. Having a specific address is crucial in HIV prevention, care, and treatment for various reasons. An accurate house number enables healthcare providers to determine the patient's home location with the minimum number of resources for tracing those patients lost to HIV care.

A study conducted in rural Mozambique, which aligned with the findings of this research, focused on lost to follow-up and opportunities for reengagement in HIV care. It found that the majority, 61.6% (n=691), were reported lost to follow-up due to a lack of proper, specific documented addresses (Fuente-Soro, López-Varela, Augusto, Bernardo, Sacoor, Nhacolo, Ruiz-Castillo, Alfredo, Karajeanes, Vaz & Naniche 2020:3).

6.3.1.2 Section B: Baseline clinical and laboratory information

This section covers key clinical and laboratory information at baseline during same-day ART initiation. The checklist for this section includes nine questions, but only eight were used for the results presentation. Height and weight were combined to calculate the body mass index (BMI), resulting in a new variable derived from the original two. The variables presented in the results include patients' histories of opportunistic illnesses, types of opportunistic infections, baseline BMI, functional status, WHO clinical staging of HIV, patients' HIV disclosure status, CD4 cell count at baseline, and the actual CD4 value at baseline. These variables provide insights into patients' health conditions, immune status, disease progression, and factors influencing ART treatment retention and viral suppression. The details of each variable are presented as follows:

6.3.1.2.1 History of opportunistic infection (OI) at enrolment (N=332)

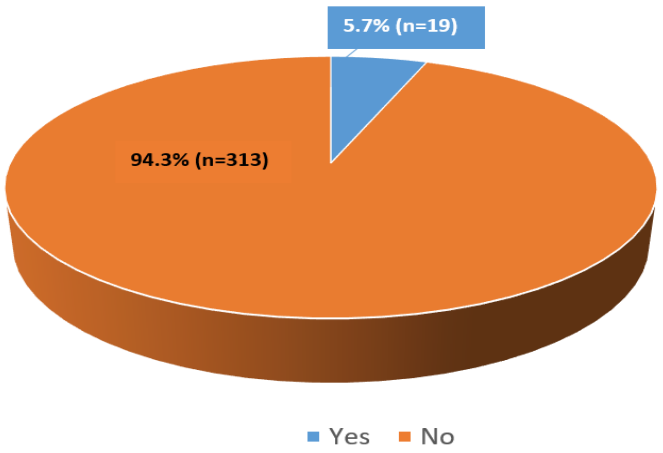


Figure 6. 9: **History of opportunistic infection (N=332)**

Enrolment in care for people living with HIV (PLHIV) provides a valuable opportunity for comprehensive monitoring, assessment, and management of opportunistic infections and other health conditions (Ministry of Health Ethiopia 2018:43). Opportunistic infections refer to infections that occur more frequently or are more severe in individuals with weakened immune systems (AIDS Info Glossary 2021:126). Figure 6.9 showed that the majority, 94.3% (n=313) patients had no opportunistic infections at enrolment, while the

minority, 5.7% (n=19) of the patients, had opportunistic infections at enrolment.

These results showed that one patient among 20 patients enrolled in same-day ART was presented with an opportunistic infection, which might affect same-day ART initiated patients' retention in HIV care and poor drug adherence due to pill burden and drug side effects. A study that concurred with this study was conducted in the West region of Cameroon on time to ART initiation and factors associated with same-day initiation, reported that the majority, 93.1% (n=2842), of patients, had no opportunistic infections, while the minority, 6.9% (n=211), were present with opportunistic infections (Nembot et al 2022:8). The results of this study, which differed from the study conducted in Northwest Ethiopia on the initiation of ART on same-day of diagnosis, noted that the majority, 72.5% (n=550), of individuals had no opportunistic infections at the beginning of their treatment. The results indicated that a minority of 27.5% (n=209) of patients had opportunistic infections upon enrolment, which was five times higher when compared to the results of this study (Moges et al 2020b:6).

6.3.1.2.2 Types of opportunistic infection (OI) at enrolment (N=19)

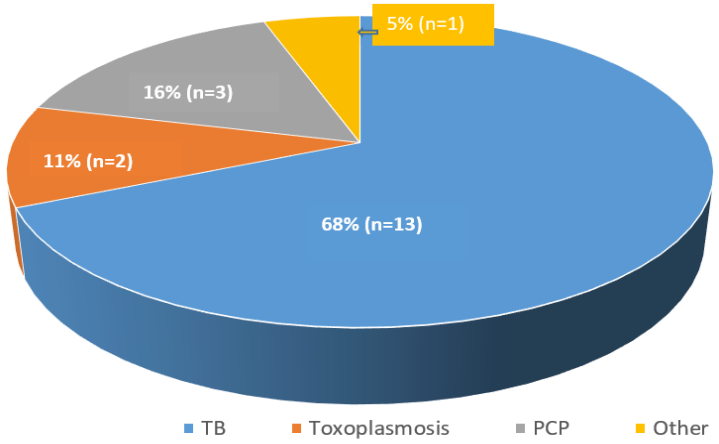


Figure 6. 10: **Types of opportunistic infections (N=19)**

Figure 6.10 showed that the majority, 68% (n=13) of opportunistic infections were tuberculosis, 16% (n=3), pneumocystis pneumonia (PCP), 11% (n=2), toxoplasmosis, and the minority, 5% (n=1) belonged to other opportunistic infections. The study indicated

that among patients initiated on same-day ART, tuberculosis was the most prevalent opportunistic infection, leading to co-morbidity and poor adherence due to pill burden. A study that concurred with this study was conducted in Haiti on the importance of integrated care for HIV and TB co-infection; prompt initiation of both ART and TB treatment can enhance outcomes and address the dual burden of HIV and TB. It revealed that 77.1%(n=37) of patients who started on same-day ART had a TB infection at enrolment (Dorvil, Rivera, Riviere, Berman, Severe, Bang, Lavoile, Devieux, Faustin, Saintyl & Mendicuti 2023:8).

In contrast to this study, a study conducted at Gondar University Comprehensive and Specialised Hospital in Ethiopia examined the incidence of opportunistic infections and their predictors among HIV patients. The study found that the majority, 16.51% (n=90), had Pneumocystis pneumonia, 16.33% (n=89) had chronic diarrhea, 10.82% (n=59) had bacterial pneumonia, and 10.46% (n=57) had pulmonary tuberculosis, making TB the fourth most common opportunistic infection (Dagnaw, Fekadu, Gebre Egziabher, Yesfue, Indracanti & Tebeje 2023:5). Another study, conducted in Kinshasa, Democratic Republic of Congo, revealed differing results, with the majority, 45.4% (n=54), having malaria and 29.4% (n=35) having TB, indicating TB was the second most common opportunistic infection (Kaseka, Ikolango, Omombo, Ipaya, Makela & Djamba 2022:2).6.3.1.2.3 Baseline body mass index of patients (N=332)

Table 6.3: Frequency distribution of baseline BMI status (N=332)

BMI category	Frequency (N)	Percentage (%)	Cumulative percent
<18.5 kg/m^2	94	28.3	28.3
18.5-24.9 kg/m^2	205	61.7	90.1
25-29.9 kg/m^2	25	7.5	97.6
>30 kg/m^2	8	2.4	100
Total	**332**	**100**	

The body mass index (BMI) is a measurement that combines a person's weight and height to assess their body composition (National AIDS Control Organisation, India 2021: xix). The Indian National Guidelines for HIV Care and Treatment (2021: xix) indicates that BMI is calculated by dividing the body mass (weight) in kilogrammes by the square of the body

height in meters. The BMI is widely used to classify individuals into different categories, including underweight (BMI < 18.5 kg/m²), normal weight (BMI 18.5 to 24.9 kg/m²), overweight (BMI 25 to 29.9 kg/m²), and obese (BMI ≥ 30 kg/m²) (National Department of Health of South Africa ART Clinical Guideline 2023:5).

In this study, data on patients' weight and height were gathered and employed to calculate BMI, enabling the assessment of both their nutritional status and weight-related health status. Table 6.3 indicated that the majority 61.7% (n=205) of patients had a BMI between 18.5 and 24.9 kg/m², 28.3% (n=94), fell within the range of 25 to 29.9 kg/m², and the minority 7.5% (n=25) had a BMI below 18.5 kg/m². These results implied that a significant portion of patients had a healthy BMI, which was a positive indicator in terms of their nutritional status concerning HIV care and treatment. Furthermore, these results showed that a minority of patients with a low BMI might require additional focus and nutritional assistance in HIV care. A study concurred with this study was conducted in Sub-Saharan Africa on same-day ART initiation as a predictor of lost to follow-up and viral suppression among people living with HIV, revealed that the majority, 64.8% (n=18804), had patients BMIs above 18.5 kg/m², while the minority, 16.4% (n=4765), had patients BMIs below 18.5 kg/m² (Ross et al 2022:23).

Based on the BMI information, the nutritional status of the patients was also classified and presented as shown in figure 6.11 below.

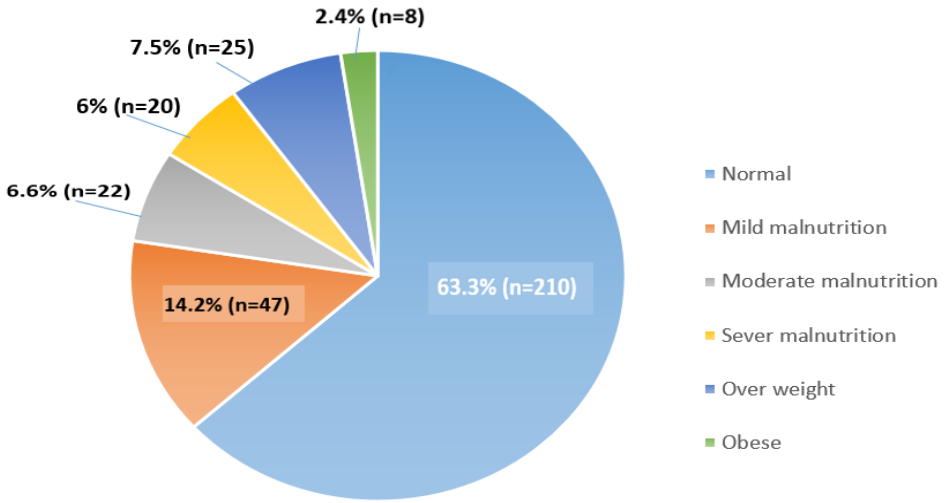


Figure 6. 11: **Baseline nutritional status (N=332)**

BMI serves as an indicator of the nutritional status of patients, which plays a crucial role in their overall health while receiving ARV drugs. The study's results revealed a diverse range of nutritional statuses among patients started on same-day ART. Figure 6.11 indicated that the majority, 63.3% (n=210), had a normal nutritional status, 7.5% (n=25) were overweight, 6.6% (n=22) had moderate malnutrition, 6% (n=20) had severe malnutrition, and the minority, 2.4% (n=8), were obese. These results implied that most patients had a normal nutritional status, which indicated monitoring nutritional issues alongside HIV treatment was essential for optimising the health outcomes of individuals living with HIV.

Furthermore, these results indicated that proper nutritional screening had been conducted for patients, which is crucial for supporting the immune system and ensuring the effectiveness of ART treatment. A study conducted in China, which aligned with these findings, examined the effects of BMI on immune reconstitution among HIV-infected individuals on ART. This study reported that the majority, 71.7% (n=1156), were classified as having a normal nutritional status, 10.7% (n=173) were mildly malnourished, 15.9% (n=256) were overweight, and a minority, 1.7% (n=27), were obese. These findings suggest that nutritional assessment requires further attention in HIV care and treatment (Li, Ding, Geng, Liu, Jiang, Xu, Zhang & Shang, 2019:3).

6.3.1.2.4 Baseline functional status of patients (N=332)

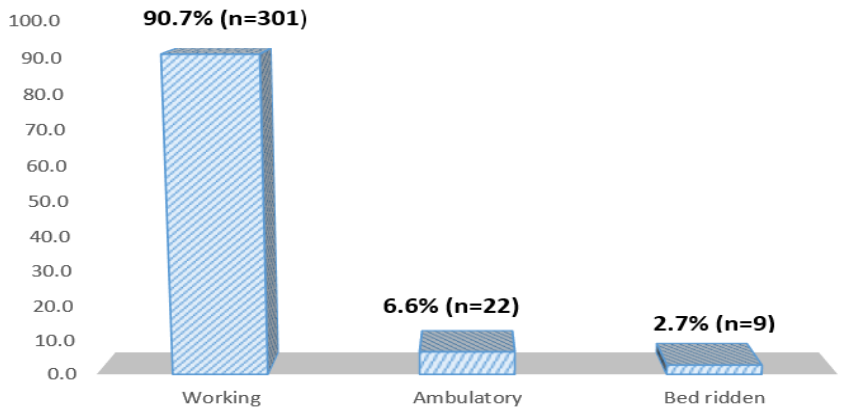


Figure 6. 12: **Baseline functional status (N=332)**

Baseline functional status in HIV care and treatment refers to the initial evaluation of a patient's mental, physical, and social well-being at the time of diagnosis or when starting HIV treatment (National AIDS Control Organisation, India 2021:17). It included assessing their physical health, symptoms and organ function, mental well-being, and social support system. This assessment helps healthcare providers understand the patient's overall health, identify any limitations or challenges they might have, and develop a personalised care plan. It served as a reference point to monitor progress and determine the effectiveness of treatment, allowing for tailored interventions that improve health outcomes and quality of life.

Figure 6.12 showed that the majority, 90.7% (n=301), were able to work, 6.3% (n=21) were ambulatory (able to walk), 2.7% (n=9) were bedridden, and the minority, 0.3% (n=1), were not assessed for their functional status. These results provided crucial insights into the patients' functional status. The fact that the majority of patients were physically capable of working was encouraging, as it could positively impact their psychological well-being and readiness to adhere to HIV treatment. On the other hand, the presence of ambulatory or bedridden individuals indicated the necessity for tailored and personalised care strategies to address their unique needs and challenges in managing HIV.

A study conducted in the Amhara region of Ethiopia, which aligned with this study, examined the effectiveness of same-day ART initiation on retention outcomes among people living with HIV. It revealed that the majority, 96.5% (n=418), were working, 3.2% (n=14) were ambulatory, and a minority, 0.2% (n=1) were bedridden (Ahmed et al 2020:5). In contrast, a study at Pawi Hospital in Northwest Ethiopia focused on outcomes and factors affecting mortality and successful tracing among patients lost to follow-up from antiretroviral therapy. This study showed lower percentages of working functional status, with the majority, 37.6% (n=124), being working, 28.6% (n=91) ambulatory, and a minority, 34.8% (n=115) bedridden. These results indicate that the proportions of bedridden and ambulatory patients were more than seven times higher compared to the findings of the Amhara region study (Assemie, Leshargien & Petrucka 2019:3).

6.3.1.2.5 Baseline WHO staging of HIV at enrolment (N=332)

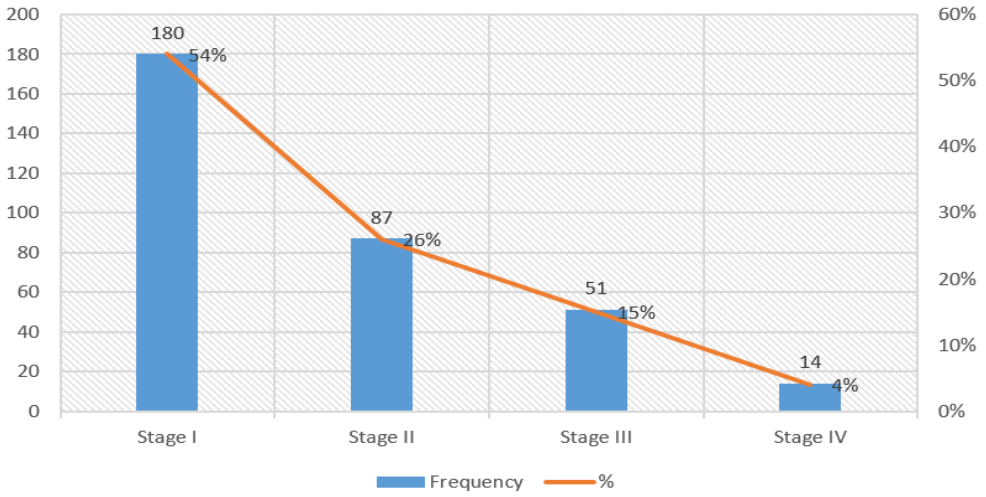


Figure 6. 13: Baseline WHO staging of HIV enrolment (N=332)

The WHO clinical staging system for HIV, developed in 1990, emphasised the use of clinical parameters to guide clinical decision-making for the management of HIV patients (World Health Organization 2005:2-5). Based on the World Health Organization (2005:2-5) clinical staging system, there are four stages based on clinical symptoms and CD4+ T-cell count, reflecting their immune function. Stage 1 represents an asymptomatic HIV infection, while stage 2 indicates mild symptoms. Stage 3 is characterised by moderate symptoms, and stage 4 signifies severe symptoms, or AIDS. The WHO staging helps healthcare providers determine the appropriate treatment and management approaches for patients by providing a standardised framework based on clinical and immunological parameters.

Results of Figure 6.13 above indicated that the majority, 54% (n=180), belonged to WHO stage I, 26% (n=87) were stage II, 15% (n=51) were stage III, and the minority, 4% (n=14), were stage IV. These results showed that a considerable portion of patients who began same-day ART had early-stage HIV infections with minimal symptoms, enabling them to take their medication more easily while limiting the potential for stigma and discrimination. On the other hand, patients who were ambulatory or bedridden required specialised care

to facilitate medication adherence and needed additional resources or manpower to take their medication.

A study conducted at Nekemte Specialised Hospital in Western Ethiopia, which aligned with this research, focused on same-day ART initiation and its associated factors. The findings revealed that the majority, 77.02% (n=372), were classified as WHO stage I, 14.08% (n=67) as stage II, and a minority, 8.91% (n=43), as stages III and IV (Bayisa et al 2023:15). In contrast, a study in Malang, East Java, Indonesia, on functional status and the incidence of lost to follow-up after ART initiation, showed different results. The majority, 35.8% (n=53), were classified as WHO stage III, 27% (n=40) as stage IV, 22.9% (n=34) as stage I, and a minority, 14.1% (n=21), as stage II. This indicates that, unlike the Ethiopian study, where most patients were in stage I, the Indonesian study found the majority in stage III (Ambarwati, Wardani & Tama 2021:315).

6.3.1.2.6 HIV disclosure status of the patients at enrolment (N=332)

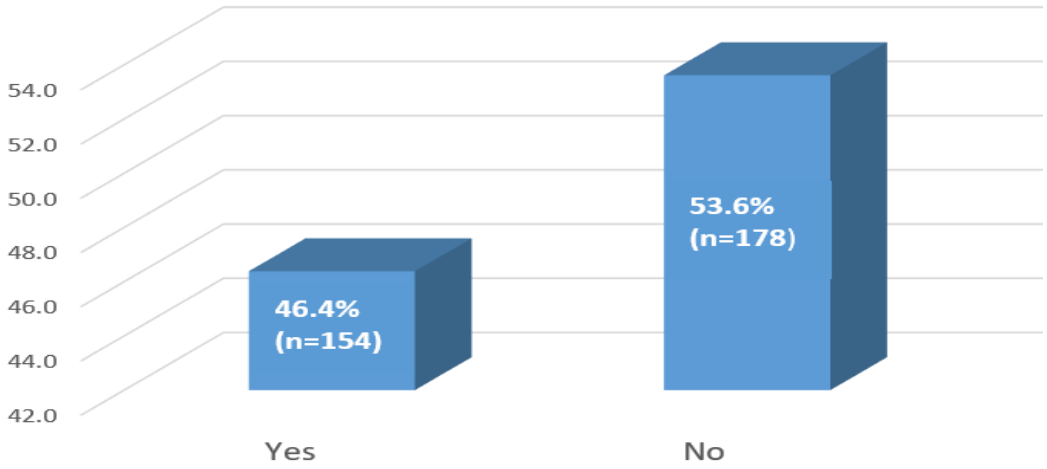


Figure 6. 14: **HIV disclosure status of patients at enrolment (N=332)**

Figure 6.14 above indicates that the majority, 53.6% (n=178), of the patients did not inform anyone about their HIV status, including their spouses or families, while the minority, 46.4% (n = 154), had disclosed their HIV status to family or friends. These results indicated that more than half of patients had not informed anyone about their HIV status, which was most important for individuals starting same-day ART treatment and their

families, as it could enable informed decision-making and gathering support from family members.

A study conducted in the Amhara region of Ethiopia, which aligns with this research, examined adherence to ART among individuals who began treatment on the same-day as their HIV diagnosis. It found that the majority, 68.4% (n=284), had disclosed their HIV status, while a minority, 11.8% (n=49), had not (Ahmed, Demissie, Worku, Gugsa & Berhane, 2021a:986). In contrast, a study in Addis Ababa focused on HIV-positive status disclosure to sexual partners and reported a higher rate of disclosure. The majority, 82.5% (n=558), had disclosed their HIV status to family members, while the minority, 17.5% (n=118), had not (Dessalegn, Hailemichael, Shewa-Amare, Sawleshwarkar, Lodebo, Amberbir & Hillman 2019:5).

6.3.1.2.7 Patient with a CD4 cell count at baseline (N=332)

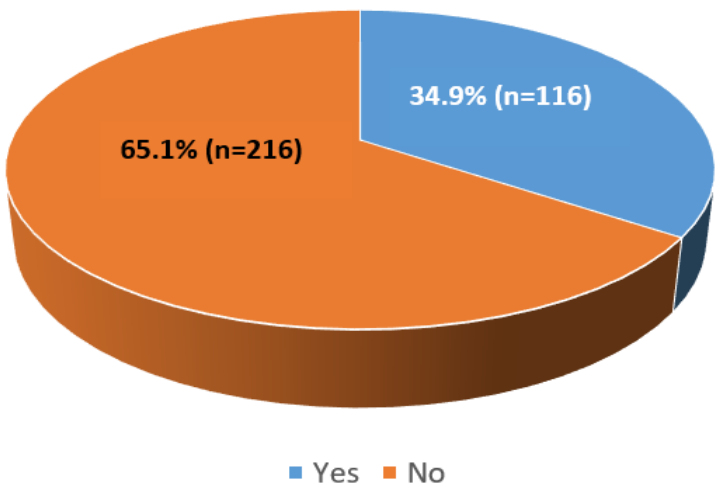


Figure 6. 15: **Patient with a CD4 cell count at baseline (N=332)**

Baseline CD4 cell count testing holds significant clinical importance for individuals living with HIV, as it helps identify those with advanced HIV disease who may require specialised care interventions (Ministry of Health Ethiopia, 2018: xi). The Ethiopian Ministry of Health National Consolidated Guidelines emphasise the importance of

comprehensive HIV prevention, care, and treatment (Ministry of Health Ethiopia, 2018: xi). Specifically, for patients initiated on same-day ART, baseline CD4 testing is crucial as it offers valuable insights into the status of their immune system at the onset of treatment.

The results in Figure 6.15 above indicated that the majority, 65.1% (n=216), did not have baseline CD4 results, while the minority, 34.9% (n = 116), had baseline CD4 test results. These results implied that patients who had baseline CD4 test results had the opportunity to be initiated on CPT (co-trimoxazole preventive therapy) based on their CD4 counts, which was essential for preventing opportunistic infections. On the other hand, those who lacked CD4 test results might have been at risk of missing CPT prophylaxis or receiving suboptimal management without evidence to guide treatment for opportunistic infections.

A study conducted in Cameroon, which aligns with this research, examined the impact of the universal test and treat policy on CD4 count testing among people living with HIV. It revealed that the majority, 93.03% (n=507), did not have baseline CD4 test results, while a minority, 6.9% (n=38) of patients, did have baseline CD4 results (Bekolo, Ndeso, Gougue, Moifo, Mangala, Tchendjou, Mboh, Ateudjieu, Tendongfor, Nsagha & Halle-Ekane, 2023:4). However, the results of this study differed from a study conducted in South Africa on routine data analysis after ART initiation, which noted that the majority, 80.9% (n=86,9571), of patients had recorded a baseline CD4 count. This proportion was higher compared to the findings of the Cameroon study (Lilian, Davies, Gilbert, McIntyre, Struthers & Rees, 2020a:3).

6.3.1.2.8 CD4 cell count value at baseline (N=116)

Table 6.4: Frequency distribution of CD4 count value (N=116)

CD4 results	Frequency (N)	Percentage (%)	Cumulative percent
<200 cells/mm^3	34	29.3	29.3
200-349 cells/mm^3	31	26.7	56.0
350-499cells/mm^3	20	17.2	73.3
≥500 cells/mm^3	31	26.7	100
Total	**116**	**100**	

Baseline CD4 results were categorised according to Indian ART guidelines, which have evolved over time. Initially, ART initiation was based on CD4 results, with the CD4 count cut-off point for initiation transitioning from less than 200 cells/mm3 in 2004 to less than 350 cells/mm3 in 2011, and then to less than 500 cells/mm3 in 2016. The current recommendation is to initiate treatment for all individuals, regardless of their clinical stage (National AIDS Control Organisation, India 2021:33). Table 6.4 illustrates that the majority, 29.3% (n=34), had CD4 results less than 200 cells/mm3, 26.7% (n=31) fell within the range of 200-349 cells/mm3, 17.2% (n=20) ranged between 350-499 cells/mm3, and a minority, 26.7% (n=31), had CD4 counts equal to or greater than 500 cells/mm3.

These results implied that the majority of patients appeared to have significant immune suppression and indicated the need for medical intervention and appropriate treatment to manage their HIV infection and prevent complications. The CD4 counts are important for assessing the status of the immune system, especially in the context of cotrimoxazole initiation for opportunistic infection prevention. A CD4 count below 200 cells/mm^3 was considered a critical threshold, indicating severe immune suppression and an increased vulnerability to opportunistic infections (Ministry of Health Ethiopia 2018:103). In contrast with this study, a study was conducted in Ethiopia at Mehal Meda Hospital on CD4+ cell count recovery after initiation of ART in HIV-infected adults revealed that the majority, 48.4% (n=274) of patients, had a CD4 count over 350 cells/mm^3, 28.3% (n=160) had <200 cells/mm^3, and the minority, 23.3% (n=132), had 200-350 cells/mm^3, which showed the majority had baseline CD4 compared to this study (Fiseha, Ebrahim, Ebrahim & Gebreweld 2022:4).

6.3.1.3. Section C: Same-day ART initiation status related information

This section covers information related to same-day ART initiation status. The data collection checklist comprised 35 questions. To calculate the duration on ART, the ART start date and last follow-up dates were utilised, merging two questions into one. Similarly, height and weight were combined to calculate body mass, resulting in a new variable. For the results presentation, 32 questions were utilised, with the variable "MUAC" for pregnant women excluded due to the absence of pregnant women in the selected clinical

records of patients initiated on same-day ART. Thus, a total of 32 questions were employed in this section, and the presentation of results is discussed extensively below.

6.3.1.3.1 HIV testing and diagnosis unit of patients (N=332)

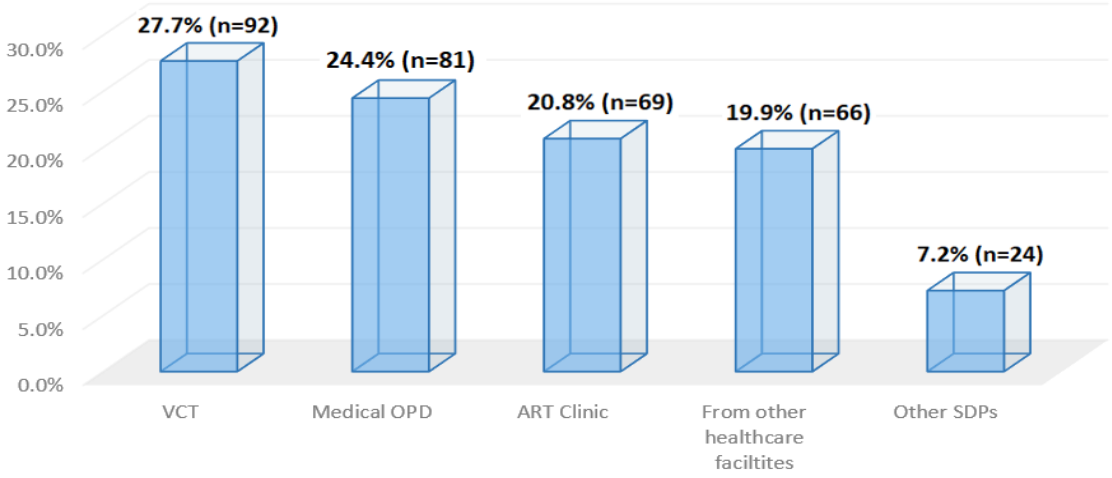


Figure 6. 16: **HIV testing and diagnosis unit (N=332)**

The role of the HIV testing unit is pivotal in facilitating the same-day initiation of ART. This encompasses patients identified as HIV-positive in other healthcare facilities and referred for ART initiation, which may occasionally lead to delays in same-day ART commencement. As depicted in Figure 6.16, the majority, 27.7% (n=92), originated from the voluntary counselling and testing (VCT) unit, 24.4% (n=69) from the ART clinic, 19.9% (n=66) were referred from other healthcare facilities, and a minority, 7.2% (n=24), were linked from other service delivery points within the healthcare facility. These findings suggest diverse sources of patients enrolled in same-day ART, with the majority identified from voluntary testing and ART clinics, highlighting areas where focused HIV testing efforts should be concentrated. A study aligning with these findings, conducted at Nekemte Specialised Hospital in Western Ethiopia on same-day ART initiation and associated factors, indicated that the majority of patients, 72.26% (n=349), were tested at VCT, while a minority, 27.74% (n=134), originated from other service delivery points (Bayisa et al 2023:16).

6.3.1.3.2 Months on ART patients (N=332)

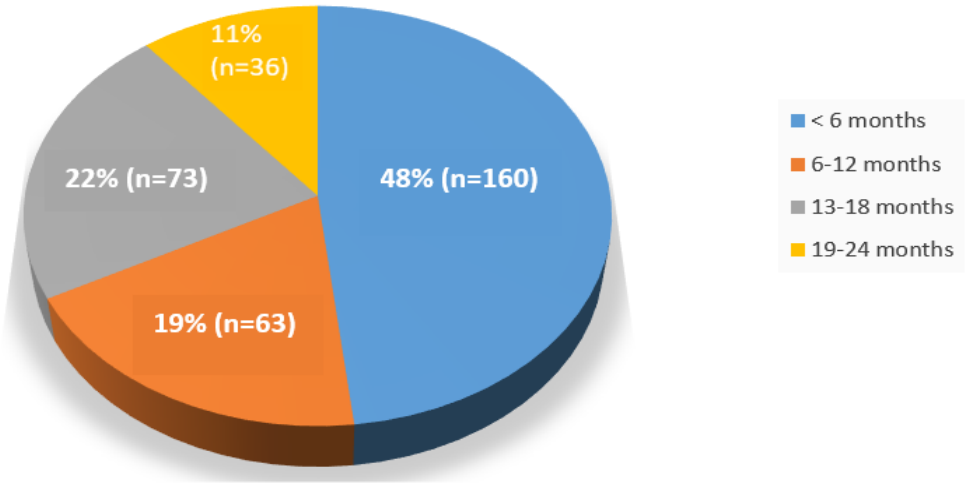


Figure 6. 17: **Months on ART since ART started (N=332)**

Figure 6.17 above depicts the distribution of patients in HIV care based on the duration of time since initiation of ART. The majority of patients, 48% (n=160), had been in HIV care for less than 6 months, 22% (n=73) for 13-18 months, 19% (n=63) for 6-12 months, and a minority, 11% (n=36), for 19-24 months on ART. These findings indicate that a significant number of patients who commenced same-day ART were lost before completing the six-month period. A study in South African public health facilities, which aligns with this research focus on same-day ART initiation, reported that 33% (n=11,114) of patients initiated on the same-day were classified as lost to follow-up, with a median time to loss of 55 days (Joseph Davey et al 2020:4). According to Joseph Davey et al (2020:4), the results demonstrated a retention rate of approximately 67% (n=22,565) at six months, which corresponds with the findings of this study.

6.3.1.3.3 Current HIV care status of patients (N=332)

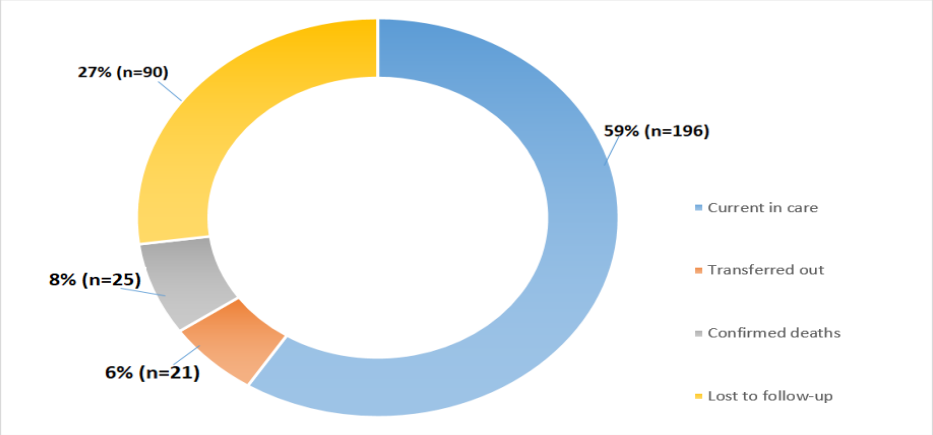


Figure 6. 18: **HIV care and retention status of patients (N=332)**

Retention in HIV care refers to an ongoing patient's engagement with medical care at a healthcare facility following their entry into HIV clinical care (Spach 2023:1). Figure 6.18 indicated that the majority, 59% (n=196), were in HIV care, 27% (n=90) were lost to follow-up, 7% (n=25) were confirmed dead, and the minority, 6% (n=21), were transferred out to another healthcare facility. These results implied that Ethiopia was significantly below the UNAIDS target of achieving 95% retention in HIV care by 2030. Furthermore, the results indicated an effort should be made to retain patients in HIV care after same-day ART initiation for the first six months.

A study aligned with this study was conducted in South Africa, focusing on same-day ART initiation for HIV-infected adults, which revealed that the majority, 64.4% (n=8399), were actively engaged in care, 29.2% (n=3804) were lost to follow-up, 6.1% (n=793) were transferred to other healthcare facilities, and a minority, 0.3% (n=42), had died (Lilian et al 2020a:5). Similarly, data reported by 72 countries as a global update towards progress in achieving the 90–90–90 targets for ending AIDS indicated that retention on antiretroviral therapy after 12 months ranged from 72% in Western and Central Africa to 89% in the Middle East and North Africa, which is consistent with the results of this study (UNAIDS, 2017:32). However, a study conducted in Kenya at the Kibera Community Health Centre HIV/AIDS programme on patient retention in HIV care revealed that the

majority, 79% (n=67), were in care, 14% (n=12) were lost to follow-up, 6% (n=5) were transferred to other healthcare facilities, and a minority, 1% (n=1), had died (Muli-Kinagwi, Ndirangu, Gachuno & Muhula, 2021:41).

The retention status of patients started on same-day ART based on months of ART was presented as indicated in figure 6.19.

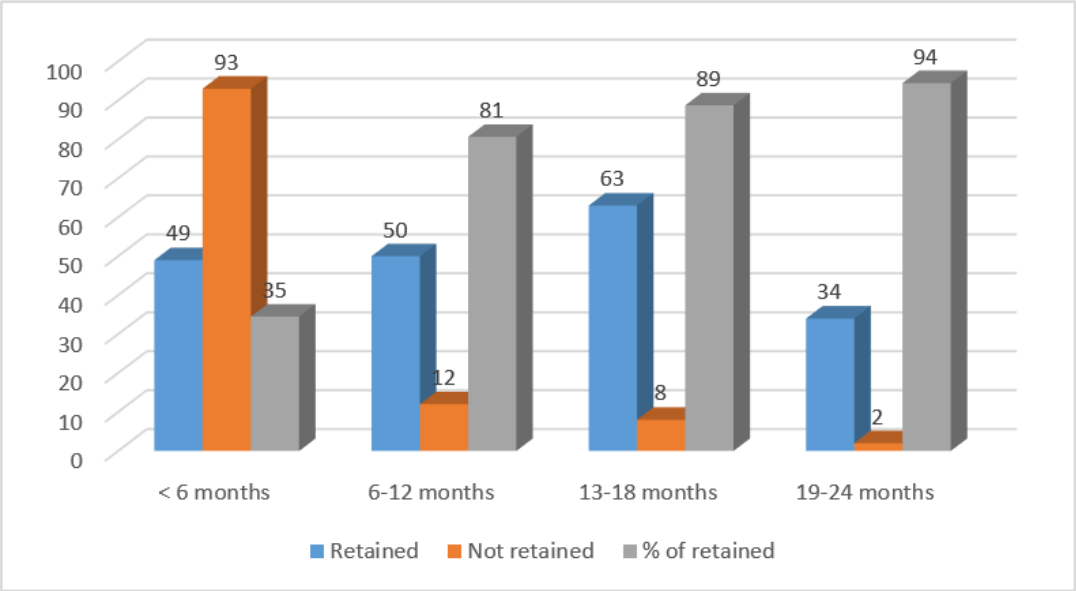


Figure 6. 19: **Retention status of patients by months on ART (N=311)**

Figure 6.19 above showed that retention rates at various time intervals following the initiation of same-day ART. At 6 months, retention was 35% (n=49), increasing to 81% (n=50) at 12 months, 89% (n=63) from 13 to 18 months, and reaching 94% (n=34) at 24 months. These results suggest a significant improvement in retention of HIV care after the initial six months of ART initiation. Additionally, they underscore the importance of providing focused attention to patients initiated on same-day ART to enhance retention during the critical first six-month period. A study aligned with these results, conducted in rural Mozambique on poor retention and care-related sex disparities among youth living with HIV, revealed an overall retention rate of 49% (n=12,179) (Ahonkhai, Aliyu, Audet, Bravo, Simmons, Claquin, Memiah, Fernando, Carlucci, Shepherd & Van Rompaey 2021:8).

Contrary to this, a study that was conducted in Italy on the impact of rapid initiation of ART at HIV diagnosis on virological response in a real-life setting, indicated that the majority, 94.4% (n=302), of patients were in HIV care at six months (Gregori, Renzetti, Izzo, Faletti, Fumarola, Degli Antoni, Arsuffi, Storti, Tiecco, Calza & Caruso 2023:5). Two (2) provinces of the Democratic Republic of the Congo on factors associated with the retention of HIV patients on antiretroviral therapy (ART) in HIV care and revealed an overall retention rate of 78.2% (n=38906), which was higher compared to the retention rate observed in this study (Shah, Etheredge, Nkuta, Waterfield, Ikhile, Ditekemena & Bernard 2022:4).

6.3.1.3.4 Patient have a VL test status at 6 months (N=332)

Table 6.5: Frequency distribution viral load test status at 6 months (N=332)

Six months viral load status	Frequency (N)	Percentage (%)	Cumulative percent
Yes	135	40.7	40.7
No	60	18.1	58.7
Not applicable	137	41.3	100
Total	**332**	**100**	

Table 6.5 above illustrated that the majority, 41.3% (n=137) were not eligible for a viral load test as they were less than 6 months on ART, 40% (n=135) had a viral load test, and 18.1% (n=60) had no viral load test done at 6 months of same-day ART initiation. These results implied that the viral load test conducted at 6 months showed low viral load testing coverage, indicating a need for healthcare providers to pay closer attention to viral load testing.

A study that concurred with this study was conducted in Ekurhuleni District, South Africa, found that the majority, 64.1% (n=455) of patients initiated on same-day ART had their viral load tested at 6 months, which showed a similar result with this study (Mshweshwe-Pakela, Hansoti, Mabuto, Kerrigan, Kubeka, Hahn, Charalambous & Hoffmann 2020:4). In Johannesburg, South Africa, a study was conducted on the clinical predictor score to identify patients at risk of poor viral load suppression at six months on ART revealed that

the majority, 80.7% (n=239), had a viral load test at six months, which was higher compared to the viral load test performance at six months observed in this study (Mbengue, Chasela, Onoya, Mboup, Fox & Evans 2019:364).

6.3.1.3.5 Months on ART at 6 months' viral load test done (N=135)

Table 6.6: Months on ART at 6 months' viral load test done (N=135)

Months at viral load test done	Frequency (N)	Percentage (N)	Cumulative percent
5	19	14.1	14.1
6	80	59.3	73.3
7	24	17.8	91.1
8	12	8.9	100
Total	**135**	**100**	

Table 6.6 shows the months on ART at which the 6th month viral load test was done. The results indicated that the majority, 59.3% (n=80) of patients' viral load tests were done at the 6th month, 17.8% (n=24) at the 7th month, 14.1% (n=19) at the 5th month, and a minority of 8.9% (n=12) were done at the 8th month of ART initiation. These results implied the existence of gaps in healthcare facilities with regard to viral load testing and suppression monitoring, as evidenced by variations in testing times that needed attention for timely viral load testing to close these gaps. The study conducted in Northwest Ethiopia on virologic outcomes of people living with human immunodeficiency virus who started antiretroviral treatment on the same-day of diagnosis at a six-month viral load test, revealed that the majority, 60.9% (n=154), performed the test in seven to nine months, 33.2% (n=84) at six months, and the minority, 5.9% (n=15), performed the test in four to five months, which differs from this study (Ahmed et al 2021b:10).

6.3.1.3.6 Viral load test results at 6 months (N=135)

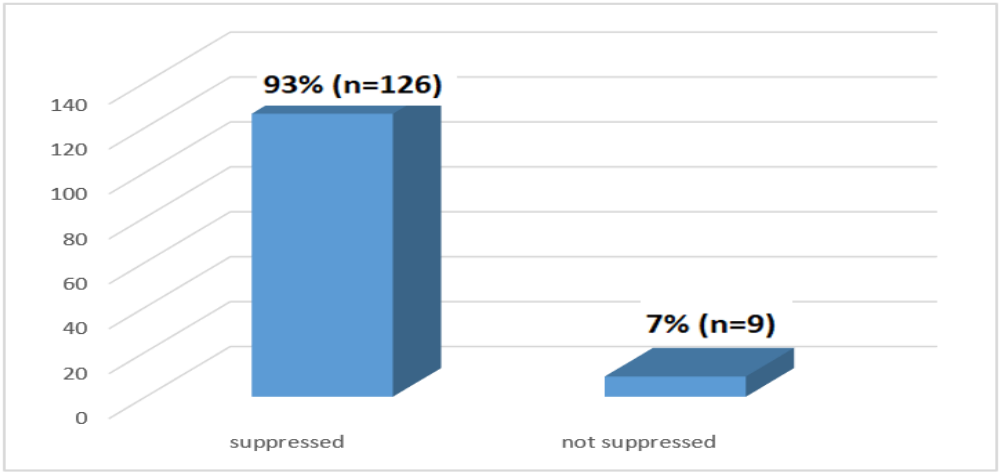


Figure 6. 20: **Viral load test results at 6 months (N=135)**

The viral load suppression cut point of less than 1000 copies/ml was used for viral load suppression based on the Ethiopian National Consolidated Guidelines for comprehensive HIV prevention, care and treatment (Ministry of Health Ethiopia 2018:75). Figure 6.20 showed that the majority, 93% (n=126), of patients have suppressed viral load test results, while the minority, 7% (n=9) have high viral load results. These results implied that viral load suppression was promising progress towards achieving the target of 95% set for 2030.

Similarly, a study conducted in Ekurhuleni District, South Africa, on the feasibility of implementing same-day ART initiation during routine care, concurred with this study and indicated that the viral suppression rate at 6 months was 78.1% (n=118) (Mshweshwe-Pakela et al 2020:4). A study conducted in rural Lesotho compared offering ART refills through community health workers versus clinic-based follow-up after home-based same-day ART initiation and revealed lower rates of viral suppression, with 44% (n=112) at six months observed in this study, which differs with this study (Amstutz et al 2021:13).

6.3.1.3.7 Patient have a viral load test status at 12 months (N=332)

Table 6.7: Frequency distribution viral load test status at 12 months (N=332)

Viral load status at 12 months	Frequency (N)	Percentage (%)	Cumulative percent
Yes	81	24.4	24.4
No	47	14.2	38.6
Not applicable	204	61.4	100
Total	**332**	**100**	

Table 6.7 above presents data on the viral load results of patients at 12 months. The results showed that the majority, 61.4% (n=204), were not eligible for a viral load test, 24.4% (n=81) had documented viral load results, and the minority, 14.2% (n=47), did not have viral load results at 12 months. These results implied that there were patients who missed the viral load test at the 12-month point, which was important for the patient's treatment progress monitoring. The results of this study, which differed from the study conducted in Myanmar on the performance and outcomes of routine viral load testing in people living with HIV, revealed that the majority, 66.1% (n=4731), of patients had viral load test results that were higher compared to this study results (Ya, Harries, Wai, Kyaw, Aung, Moe, Htun, Shin, H.N, Aye & Oo 2020:6).

6.3.1.3.8 Months on ART 12 months' viral load test done (N=81)

Table 6.8: Months on ART at 12 months' viral load test done (N=81)

Months at viral load test done	Frequency (N)	Percentage (%)	Cumulative percent
9	2	2.5	2.5
10	2	2.5	4.9
11	8	9.9	14.8
12	23	28.4	43.2
13	19	23.5	66.6
14	15	18.5	85.1
15	10	12.3	97.5
16	2	2.5	100
Total	**81**	**100**	

Table 6.8 presents data on the timing of viral load tests conducted during the course of antiretroviral therapy. Results indicated that the majority, 28.4% (n=23), of the tests were done at the 12th month, 23.5% (n=19) were conducted at the 13th month, 18.5% (n=15) at the 14th month, 12.3% (n=10) at the 15th month, 9.9% (n=8) at the 11th month, and a minority, 2.5% (n=2), were done at the 9th, 10th, and 16th months on ART. These results indicated that only 28.4% (n=23) of patients who had done viral load testing at the 12th month did so at the expected 12-month interval. These results implied that there was a lack of adherence to the recommended viral load testing schedule, potentially attributable to insufficient patient follow-up measures. A study conducted in Northwest Ethiopia on the virologic outcomes of people living with human immunodeficiency virus who started antiretroviral treatment on the same-day of diagnosis at the 12-month viral load test revealed that the majority, 45.5% (n=30), performed the test in 13-15 months, 40.9% (n=27) in 10-11 months, and the minority, 13.6% (n=9), performed the test at 12 months, which differs from this study (Ahmed et al 2021b:10).

6.3.1.3.9 Viral load test results at 12 months (N=81)

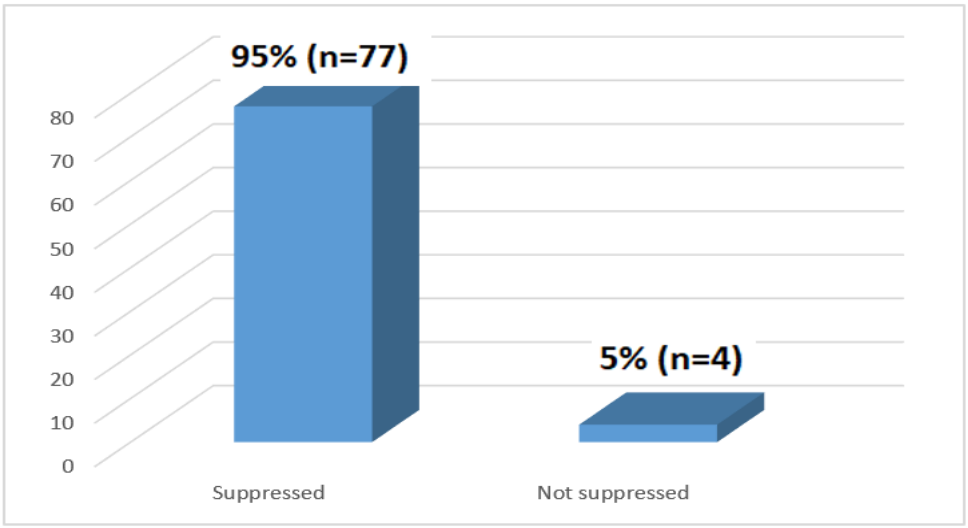


Figure 6. 21: **Viral load test results at 12 months (N=81)**

Figure 6.21 shows viral road test results at 12 months among patients who had the test

performed at 12 months. The majority 95% (n=77), of patients have suppressed viral load results, and a minority, 5% (n=4) have high viral load test results. The viral load suppression cut point of less than 1000 copies/ml was used for viral load suppression based on the Ethiopian National Consolidated Guidelines for comprehensive HIV prevention, care and treatment (Ministry of Health Ethiopia 2018:75).

A study that concurred with this study was conducted in Lilongwe, Malawi, on outcomes for women newly initiated on lifelong antiretroviral therapy during pregnancy, revealed that at 12 months, the majority, 90% (n=269) of patients, achieved viral suppression (Chagomerana, Harrington, DiPrete, Wallie, Maliwichi, Wesevich, Phulusa, Kumwenda, Jumbe & Hosseinipour 2023:8). Results of this study differ from the study conducted in rural Lesotho, which compared offering ART refills through community health workers versus clinic-based follow-up after home-based same-day ART initiation and revealed a 54% (n=138) viral suppression rate at 12 months, which was lower compared to the 12th month of viral suppression rate (Amstutz et al 2021:13).

6.3.1.3.10 Patient have a viral load test status at 24 months (N=332)

Table 6.9: Frequency distribution viral load test status at 24 months (N=332)

VL 24 months status	Frequency (N)	Percentage (%)	Cumulative percent
Yes	7	2.1	2.1
No	4	1.2	3.3
Not applicable	321	96.7	100
Total	**332**	**100**	

Table 6.9 presents data on the viral load results of patients at 24 months. Study results noted that the majority, 96.7% (n=321) of patients, were not ineligible for a viral load test at 24 months, 2.1% (n=7) had documented viral load results, and the minority, 1.2% (n=4) did not have any recorded viral load results. These results implied that there was low viral load testing coverage at 24 months, indicating the attention of healthcare providers to improving patient retention in care to reduce morbidity and mortality. These results also indicated that the majority of the patients did not reach the full 24-month duration under study and were therefore not eligible for the viral load test.

A study that concurred with this study was conducted at Hlabisa sub-district in South Africa on clinical outcomes after first-line HIV treatment, revealed that at 24 months only 25.5% (n=4334) had viral load results (Iwuji, Shahmanesh, Koole, Herbst, Pillay, Siedner, Baisley & H-Dream Network 2020:459). A study conducted in Malawi on viral load monitoring outcomes from a decentralised HIV programme had different results from this study, which indicated that 89% (n=10,476) of patients had viral load at 24 months, which was higher compared to this study results (Nicholas, Poulet, Wolters, Wapling, Rakesh, Amoros, Szumilin, Gueguen & Schramm 2019:5).

6.3.1.3.11 Months on ART at 24 months' viral load test done (N=81)

Table 6.10: Months on ART at 24 months' viral load test done (N=81)

Months at viral load test done	Frequency (N)	Percentage (%)	Cumulative percent
21	1	14.3	14.3
23	1	14.3	28.6
24	4	57.1	85.7
25	1	14.3	100
Total	**7**	**100**	

Table 6.10 shows the months on ART at which the 24-month viral load test was done. The results indicated that the majority, 57.1% (n=4) viral load tests were done at 24 months and 14.3% (n=1) at the 21st, 23rd, and 25th months of ART initiation. The results implied that the majority of patients, 57.1% (n = 4), had viral load results at the expected time of 24 months. These results also indicated that there was a lack of adherence to the recommended viral load testing schedule, potentially attributable to insufficient patient follow-up that might lead to morbidity and mortality.

6.3.1.3.12 Viral load test results at 24 months (N=7)

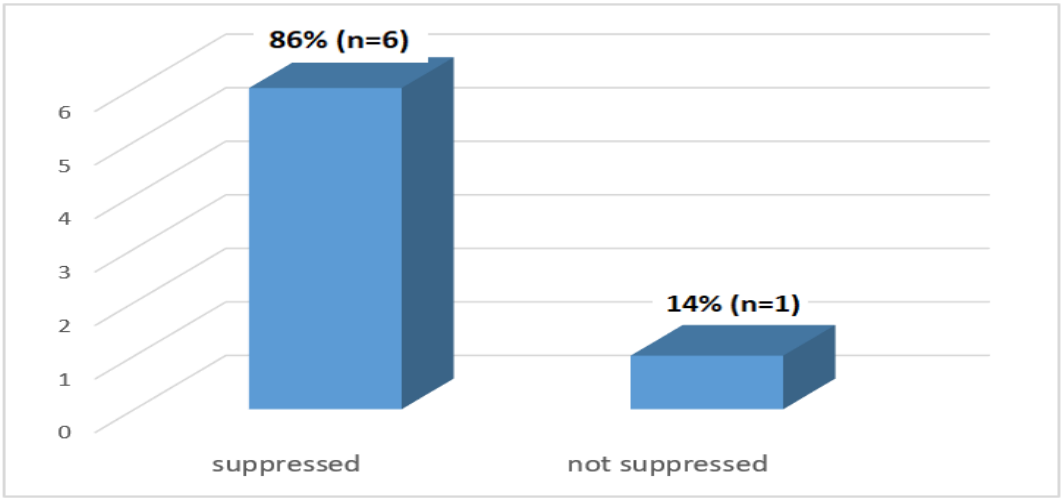


Figure 6. 22: **Viral load test results at 24 months (N=7)**

Figure 6.22 provides an overview of the viral load test results at the 24-month mark for a group of patients whose viral load test was done. The majority of 86% (n=6) patients had achieved suppressed viral load results, and the minority, 14% (n=1) of the patients, had high viral load results. These results implied that, viral suppression at 24 months was promising progress towards the UNAIDS target of 2030. A study that concurred with this study was conducted in Vietnam on the assessment of HIV viral load monitoring in remote settings, revealed that the majority, 93.4% (n=340), achieved viral suppression at 24 months (Lefrancois, Nguyen, Pham, Le, Dao, Tran, Ngo, Tong, Phan, Ait-Ahmed & Pham 2023:6). Another study that concurred with this study was conducted in Lilongwe, Malawi, on outcomes for women newly initiated on lifelong antiretroviral therapy during pregnancy, revealed that at 24 months, the majority, 91% (n=271) of patients, achieved viral suppression (Chagomerana et al 2023:8).

6.3.1.3.13 ART regimen at ART initiation (N=332)

Table 6.11: ART regiment types at enrolment (N=332)

Types of regimen	Frequency (N)	Percentage (%)	Cumulative percent
1j =TDF-3TC-DTG	63	19.0	19.0
1c=AZT-3TC-NVP	3	0.9	19.9
1d=AZT-3TC-EFV	9	2.7	22.6
1e=TDF-3TC-EFV	251	75.6	98.2
1f=TDF-3TC-NVP	6	1.8	100
Total	**332**	**100**	

Table 6.11 above showed that the majority, 75.6% (n=251), of patients were initiated on regimen 1e=TDF-3TC-EFV, 19% (n=63) of patients were initiated on regimen 1j=TDF-3TC-DTG, and the minority, 5.4% (n=8), were initiated on regimens 1c=AZT-3TC-NVP, 1d=AZT-3TC-EFV, and 1f=TDF-3TC-NVP. The results implied that the majority of patients in this study initially initiated their treatment with the 1e regimen, which might have been the first-line regimen in the past, whereas currently, 1j is the preferred first-line regimen. The type of ART regimen that patients initiate can significantly influence their retention and adherence to medication, which might be influenced by drug side effects.

A study conducted in the Amhara region of Ethiopia on the effectiveness of same-day ART initiation in retention outcomes among people living with HIV concurred with this study and indicated that the majority, 99.5% of patients, were started on 1e=TDF-3TC-EFV for the first time (Ahmed et al 2020:6). The results of this study, which differed from the study conducted in Eastern Ethiopia on the adherence to highly active antiretroviral therapy and collaborated factors among people living with HIV, revealed that the majority, 70.1% (n=351), of patients were initiated on 1j=TDF-3TC-DTG, 14.8% (n=74) of patients were initiated on 1e=TDF-3TC-EFV, 9.1% (n=30) initiated on the second line regimen, and the minority, 1% (n=5), were initiated on 1d=AZT-3TC-EFV regimens (Tegegne, Mamo, Negash, Habte, Gobena & Letta 2022:4).

6.3.1.3.14 ART regimen dispensing dose at ART initiation (N=332)

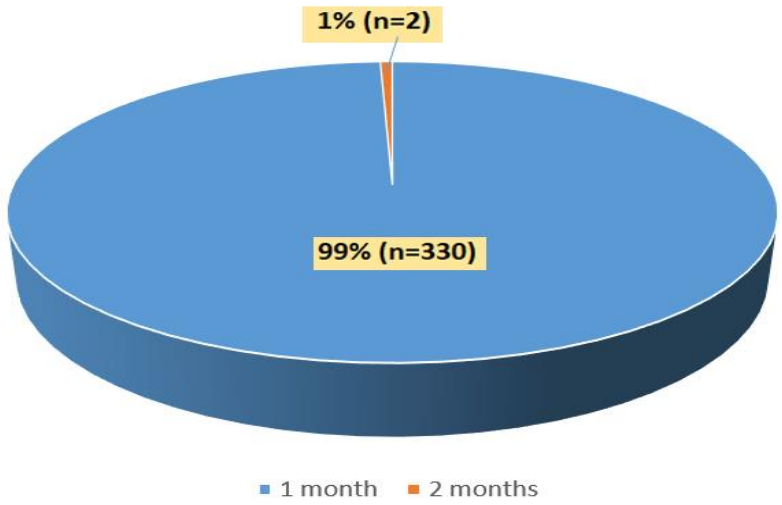


Figure 6. 23: **ART dispense dose at ART initiation (N=332)**

Figure 6.23 shows the last follow-up, ART drug dispensing patterns. The results revealed that the majority, 99% (n=330), of the patients received a one-month ARV supply. The minority, 1% (n=2), were given a two-month ARV supply. These results implied that for new patients initiated on same-day ART, monthly follow-ups could be crucial for closely monitoring adherence and addressing any potential drug side effects as early as possible. A study that concurred with this study was conducted in public hospitals in KwaZulu-Natal, South Africa, on patient-centred care and revealed that 80% (n=320) of patients collected their ARVs monthly (Mulqueeny &Taylor 2022:7).

The results of this study differed from the study conducted in Nigeria on patients' willingness to pay for ART treatment services, which revealed different dispensing patterns. The results showed that the majority, 58.5% (n=234), were prescribed appointments for more than three months; 21.5% (n=86) of patients were prescribed monthly; 18.75% (n=75) were prescribed every two months; and the minority, 1.25% (n=5) were prescribed more than one appointment in a month (Durosinmi-Etti, Fried, Dubé, Sylvia, Greene, Ikpeazu & Nwala 2022:5). Prescribing ARV drugs for new patients for more than three months on the first day of ART initiation affected adherence to the

drugs due to drug side effects, especially in developing countries like Ethiopia, where there was no mechanism to monitor patients' treatment progress.

6.3.1.3.15 ART regimen change status (N=332)

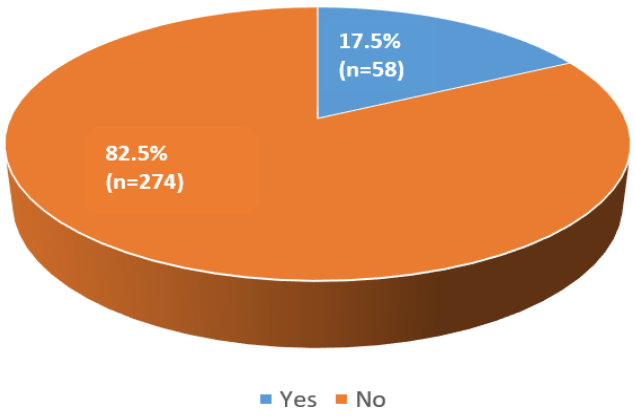


Figure 6. 24: **Patients whose ART regimen changed (N=332)**

Figure 6.24 shows that the majority, 82.5% (n=274) of patients, were on the initial ARV regimen, while the minority, 17.5% (n=58), had their treatment regimen changed during the course of their treatment. These results implied that most patients in the study had stable treatment regimens, with only a minority changed their initial regimes, which might be due to different reasons during their treatment period. A study that concurred with this study was conducted in South Africa examining the determinants and reasons for switching antiretroviral regimens among HIV-infected youth found that 29.4% (n=605) of patients had changed their ART during their follow-up period (Kabarambi, Balinda, Abaasa, Cogill & Orrell 2022:4). The results of this study differed from the study conducted in Addis Ababa, Ethiopia, which focused on antiretroviral therapy service quality and collaborated factors at public hospitals, reported that the majority, 84.6% (n=302) of patients, had change their previous ARV regimens for various documented reasons (Tiruneh & Woldeyohannes 2022:137). This significant changed in regimens implied that there may have been an update in the treatment regimen, potentially involving the phase-out of initial drugs or issues related to stock availability, which could have implications for patients' adherence to ARVs.

6.3.1.3.16 Reason for the regimen change (N=58)

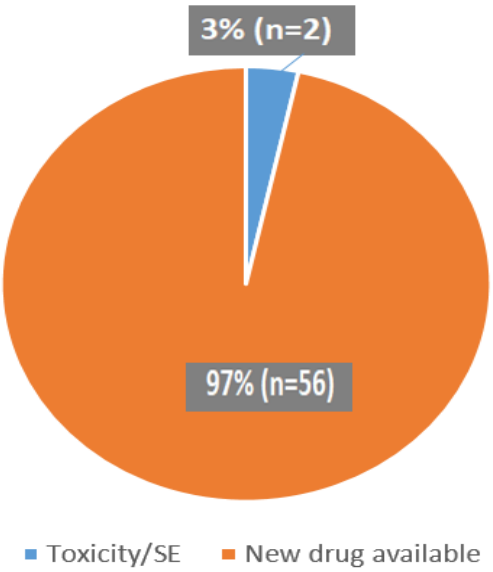


Figure 6. 25: **Reason for regimen changed (N=58)**

Figure 6.25 indicates that the majority, 96.6% (n=56), of patients ARV regimens changed due to the availability of new drugs, and the minority, 3.4% (n=2), experienced regimen changes due to drug toxicity. These results implied that the change in regimens was a result of the introduction of new drugs, with a minority experiencing changes in their treatment regimen due to drug-related toxicity, which required attention in terms of drug side effect management. A study that concurred with this study was conducted at Nedjo General Hospital in Western Ethiopia on reasons for antiretroviral treatment change among adult HIVAIDS patients, revealed that the majority, 39.3% (n=46), changed regimens due to new drug availability, 29.2% (n=34) drug toxicity, 17.9% (n=21) TB, and the minority, 13.9% (n=16), were due to other reasons (Fekadu, Bati & Gebeyehu 2019:67). The results of this study, which differs from the study conducted in Ethiopia to investigate the extent and reasons for first-line ART regimen changes among HIV patients, showed that the majority, 58% (n=7927) regimen changes were due to toxicity, 18% (n=2460) new or guideline changes, 12% (n=1640) TB co-morbidity, 7% (n=956) treatment failure, and the minority, 5%(n=683), were due to pregnancy (Ataro, Motbaynor,

Weldegebreal, Sisay, Tesfa, Mitiku, Marami, Teklemariam & Shewamene 2019:4).

6.3.1.3.17 Last follow-up ART regimen (N=332)

Table 6.12: Last follow-up ART regimen types (N=332)

ART regimen	Frequency (N)	Percentage (%)	Cumulative percent
1j =TDF-3TC-DTG	120	36.1	36.1
1c=AZT-3TC-NVP	3	0.9	37.0
1d=AZT-3TC-EFV	4	1.2	38.3
1e=TDF-3TC-EFV	201	60.5	98.8
1f=TDF-3TC-NVP	4	1.2	100
Total	**332**	**100**	

Table 6.12 showed the majority, 60.5% (n=201), were receiving the 1e regimen (TDF-3TC-EFV), 1j (TDF-3TC-DTG), 36.1% (n=120) and the minority, 3.3% (n=10) received the 1c=AZT-3TC-NVP, 1d=AZT-3TC-EFV, and 1f=TDF-3TC-NVP in the last follow-up. These results implied that the majority of patients remained stable on the initial 1e regimen during their treatment, which might show that the treatment was working while a minority switched to the 1j regimen, as 1j was the preferred first-line regimen introduced late.

6.3.1.3.18 Last follow-up ART adherence (N=332)

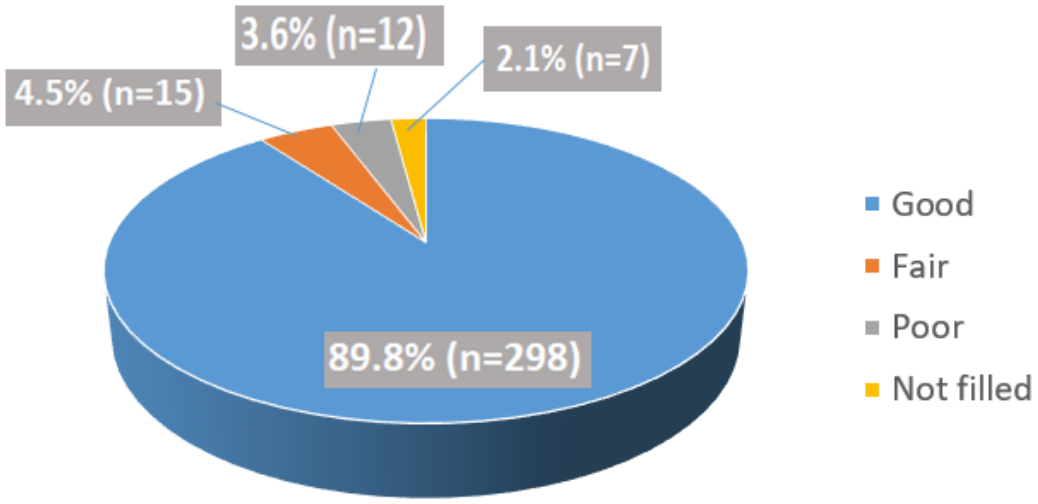


Figure 6. 26: **Last follow-up adherence (N=332)**

Adherence to medication instructions, as defined in the AIDS Info Glossary, yields benefits such as viral suppression, reduced resistance risk, improved health, and decreased HIV transmission, enabling individuals to optimise outcomes and reduce transmission risk (AIDS Info Glossary 2021:4). Figure 6.26 showed that the majority, 89.8% (n=298) of patients, were in the category of good adherence; 4.5% (n=15) were with fair adherence; 3.6% (n=12) were with poor adherence; and the minority, 2.1% (n=7), adherence status was missed. The results might imply that a large proportion of the patients in the study were compliant with their treatment, which is generally a positive outcome in medical research. A study that concurred with this study was conducted in the Amhara region, which focused on the time to lost to follow-up and its predictors among adult patients receiving ART, revealed that the majority, 78.2% (n=424), had good adherence, 16.1% (n=87), had poor adherence, and the minority, 5.7% (n=31) had poor adherence (Telayneh, Tesfa, Woyraw, Temesgen, Alamirew, Haile, Tafere & Petrucka 2022:2).

6.3.1.3.19 Last follow-up reason for fair or poor adherence (N=27)

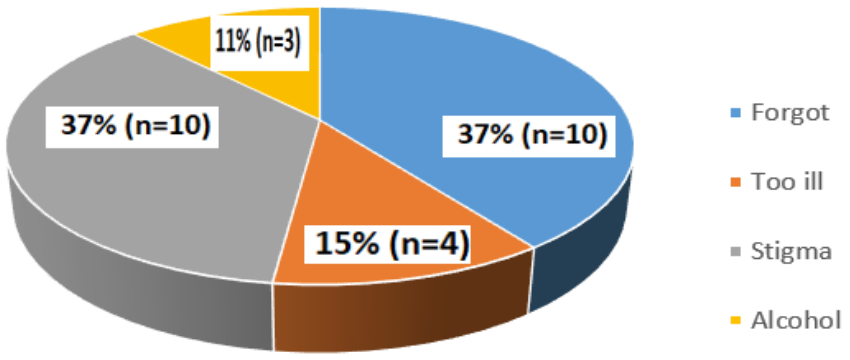


Figure 6. 27: **Reason for fair or poor adherence (N=27)**

In figure 6.27, the factors that influenced fair or poor adherence to ART were illustrated.

These results revealed that the majority, 37% (n=10) forgot, 37% (n=10) were due to stigma, 15% (n=4) were too ill, and the minority, 11% (n=3) were due to alcohol consumption that led them to fair or poor adherence. These results might imply that diverse factors influence patient adherence to ART, providing valuable insights for healthcare interventions and support strategies. A study that concurred with this study was conducted in Southern Ethiopia on adherence to antiretroviral therapy among adults living with HIV, which revealed that the majority, 36% (n=48) forgot, 24% (n=32) fear of drug side effects, 17% (n=23) hopelessness, 8% (n=11) due to distance for healthcare facilities, and the minority, 2.2% (n=3) due to other reasons for fair and poor adherence to ARV drugs (Koyra 2018:5).

6.3.1.3.20 Last follow-up ARV dispense dose (N=332)

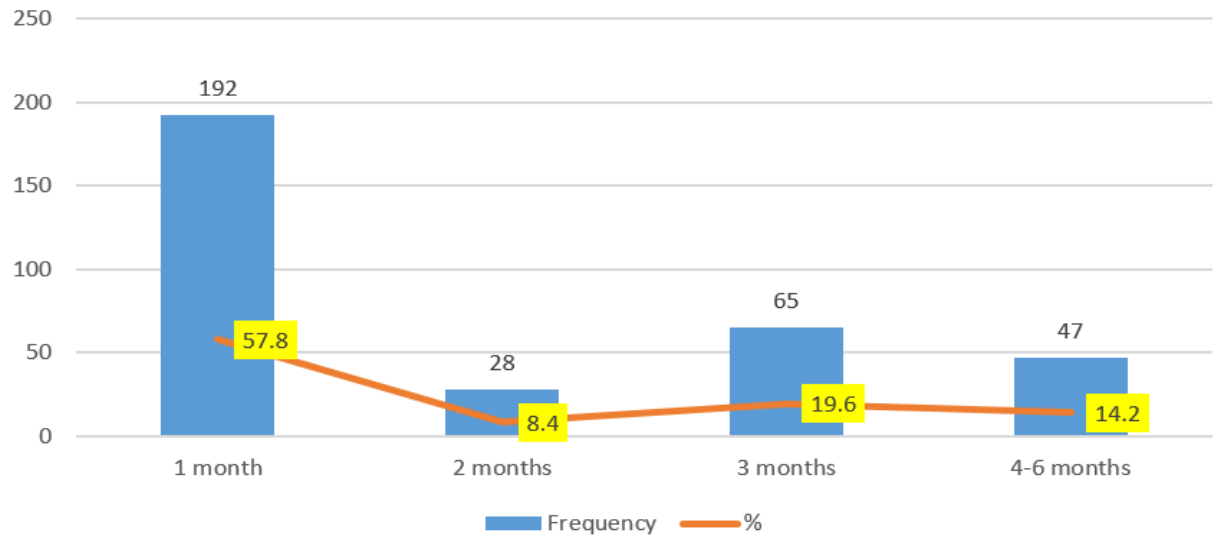


Figure 6. 28: **Last follow-up ARV dispense dose (N=332)**

Figure 6.28 illustrates the variability in the last follow-up ARV dispense dose durations, ranging from one month to six months. The results showed that the majority, 57.8% (n=192), received ARV medication for a one-month period, 19.6% (n=65) were supplied with ARV medication for a three-month duration, and the minority, 14.2% (n=47), received ARV medication for durations ranging from four to six months. These results implied that,

in the distribution of ARV dispensing for same-day ART-initiated patients, one month was the most prevalent duration, which was beneficial for adherence and close patient follow-up. On the other hand, monthly visits to healthcare facilities required extra time and resources, which might also have led to lost to follow-up. Multi-month dispensing benefited in terms of reducing time and resource waste from frequent visits.

6.3.1.3.21 Other drugs in addition to ART (N=332)

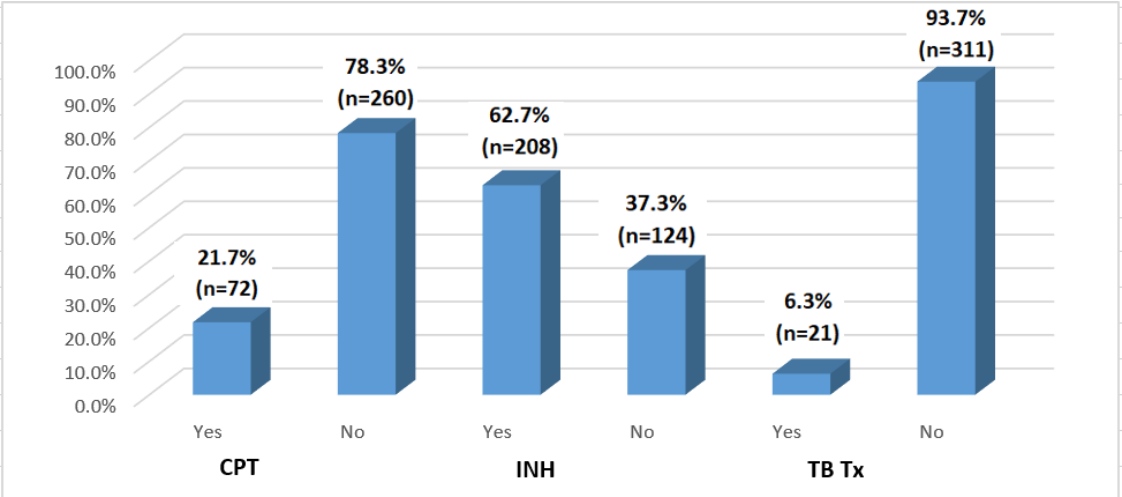


Figure 6. 29: **Other drugs given in addition to ARV (N=332)**

Figure 6.29 showed other drugs given in addition to ARV for patients who started on same-day ART. The study found that the majority, 78.3% (n=260), did not receive CPT, while the minority, 21.7% (n=72), were prescribed CPT together with their ART treatment. The results also revealed that the majority, 62.7% (n=208), received INH, and the minority, 37.3% (n=124), did not. Regarding TB treatment, the majority, 93.7% (n=311), were not given treatment, while the minority, 6.3% (n=21), were treated for TB cases. These results implied that a minority of patients received CPT, INH, and TB-related medications to address morbidity and mortality due to opportunistic infections in addition to their ART treatment, which might have supported the progress of their ART treatment. These results also implied that additional medication for ART patients could potentially impact adherence to ART drugs because of the increased pill burden and potential drug side effects, which could result in patients lost to follow-up.

A study that concurred with this study was conducted in Northwest Ethiopia on same-day ART initiation and associated factors, which reported that the majority, 37.5% (n=150), received INH, 19.8% (n=285) received CPT, and the minority, 8.8% (n=67), received both CPT and INH drugs alongside their ART regimen (Moges et al 2020b:7). The results of this study differed from the study conducted at public health institutions in Northwest Ethiopia that focused on delayed ART initiation in the "Test and Treat era" and factors that collaborated with adults receiving ART. It was revealed that the majority, 59% (n=299), received CPT, 56.6% (n=287) received INH, and the minority, 21.3% (n=108), received TB treatment, which was higher compared to the results of this study (Bantie, Kassaw Yirga, Abate, Amare, Nigat, Tigabu, Kerebeh, Emiru, Tibebu, Tiruneh & Misganaw 2022:9).

6.3.1.3.22 Last follow-up BMI (N=332)

Table 6.13: Frequency distribution of last follow-up BMI status (N=332)

BMI category	Frequency (N)	Percentage (%)	Cumulative percent
<18.5 kg/m^2	72	21.7	21.7
18.5-24.9 kg/m^2	212	63.9	85.5
25-29.9 kg/m^2	39	11.7	97.3
>30 kg/m^2	9	2.7	100
Total	**332**	**100**	

Table 6.13 indicates the BMI status of patients at the last follow-up. The results showed that the majority of patients, 63.9% (n=212), had a BMI between 18.5 and 24.9 kg/m², 21.7% (n=72) had a BMI <18.5 kg/m^2, 11.7% (n=39) had a BMI 25-29.9 kg/m^2, and a minority of 2.7% (n=9) had a BMI >30 kg/m^2. These results implied that the majority of patients had a healthy BMI, which was a positive indicator in terms of their nutritional status with HIV care and treatment. These results also showed that a minority of patients with a low BMI might require additional nutritional treatment in addition to HIV care and treatment.

Based on the last follow-up BMI information, the nutritional status of the patients was

classified as shown in figure 6.30 below.

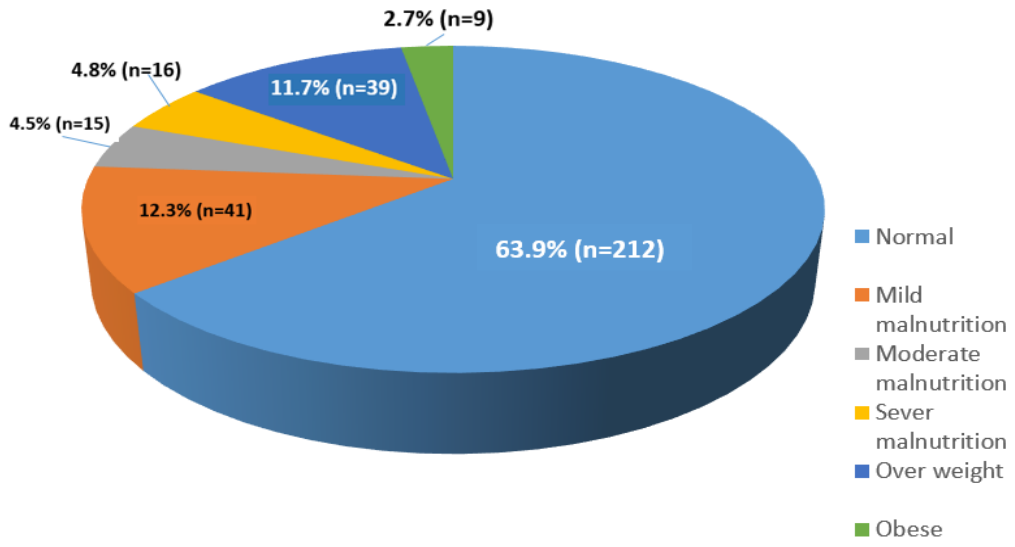


Figure 6. 30: **Last follow-up nutritional status (N=332)**

Figure 6.30 indicates the last follow-up nutritional status of patients who started on same-day ART based on BMI results. The results revealed that the majority, 63.9% (n=212), of the patients had a normal nutritional status, 12.3% (n=41) had mild malnutrition, 4.5% (n=15) had moderate malnutrition, and the minority, 4.8% (n=16), had severe malnutrition. These results implied that a minority needed intensive nutritional support and medical care to prevent morbidity and mortality due to nutritionally caused diseases. A study which concurred with this study was conducted in Gaborone, Botswana, on factors associated with change in body mass index among recipients of antiretroviral therapy and revealed that the majority, 43.3% (n=233), were normal, 28.8% (n=153), were overweight, 19% (n=101), were obese, and the minority, 8.3% (n=44), were underweight (Tshikuka, Magafu, Rankgoane-Pono, Mwita, Masupe, Hamda, Tapera, Molefi, Tshibangu & Tlhakanelo 2020:4).

6.3.1.3.23 Last follow-up functional status (N=332)

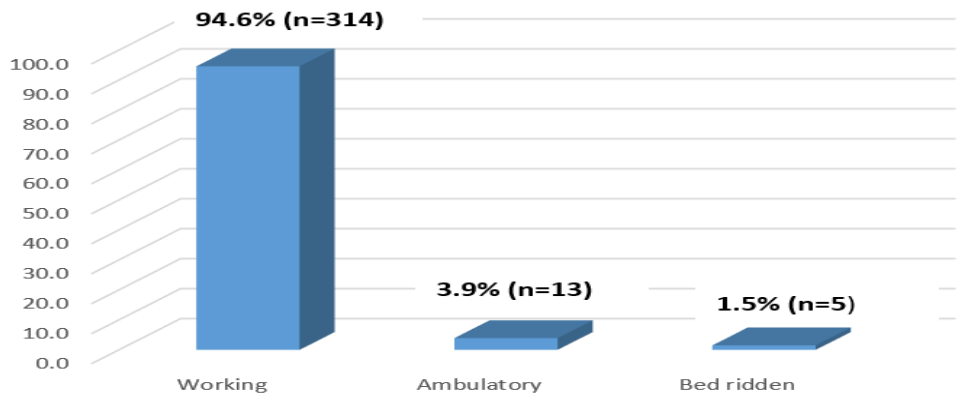


Figure 6. 31: **Last follow-up functional status (N=332)**

Functional status is referred to as “working" if the individual is capable of performing regular tasks both within and outside their home; “ambulatory" if they can manage activities of daily living but are unable to work; and "bedridden" if they cannot carry out activities of daily living (Ministry of Health Ethiopia training manual 2018:127). Figure 6.31 shows the last follow-up functional status. The results revealed that the majority, 94.6% (n=314) were working, 3.9% (n=13) were ambulatory, and the minority, 1.5% (n=5) were bedridden. These results implied that the majority of patients in the last follow-up were able to perform their daily activities, which might indicate a good response to same-day ART treatment. However, it was important to note and address the needs of those in the ambulatory and bedridden categories to ensure they received appropriate care and support to improve their functional status and overall quality of life.

The results of this study differed from the study conducted in the Amhara region, which focused on the time to lost to follow-up and its predictors among adult patients receiving ART, revealed that in the last follow-up, the majority, 68% (n=369) were working, 20.2% (n=109) were bedridden, and the minority, 11.8% (n=64) were ambulatory (Telayneh et al 2022:5).

6.3.1.3.24 Last follow-up of treatment staging (N=332)

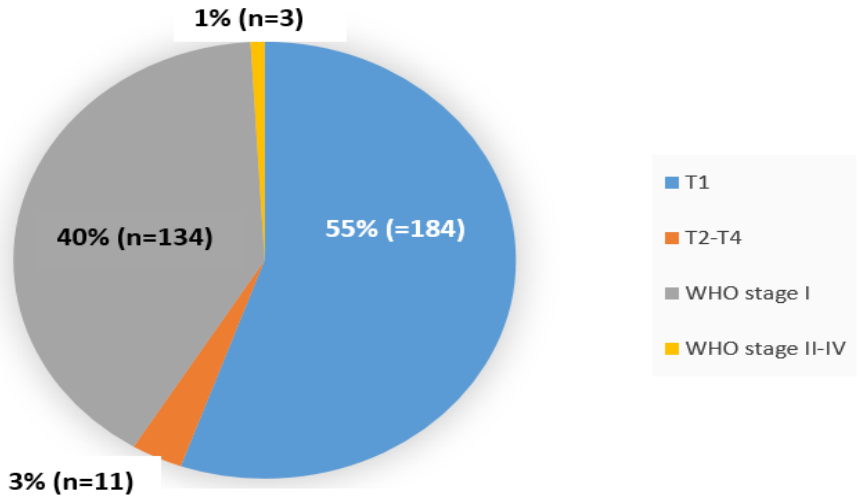


Figure 6. 32: **Last follow-up of treatment staging (N=332)**

The term "last follow-up staging" refers to determining the stage of a patient's condition after receiving same-day ART treatment (Ministry of Health Ethiopia 2018:20). According to the Ethiopia Ministry of Health training manual (2018:20), two staging systems are employed once patients commence ART: WHO clinical staging and T-staging. WHO clinical staging sorts adult patients into one of four hierarchical clinical stages, ranging from stage 1 (asymptomatic) to stage 4 (AIDS), based on clinical diagnosis (Weinberg & Kovarik 2010:203). Similarly, T-staging is a treatment-based staging system conducted six months after initiating ART, categorising patients from T1 to T4 (Ministry of Health Ethiopia 2018:20).

Figure 6.32 shows the last follow-up staging after same-day ART initiation. The results revealed that the majority, 55% (n=184), were classified as T1, meaning that they were asymptomatic after six months of ART initiation; 40% (n=134) were under WHO stage I, which means that they were asymptomatic and less than six months since ART was initiated; 3% (n=11) were classified as T2-T4, meaning that they had mild to severe clinical symptoms after six months of ART initiation; and a minority of 1% (n=3) were classified as WHO stage II-IV, meaning that they had mild to severe clinical symptoms

less than six months after ART initiation. These results implied that improvements in WHO staging indicated the progress of same-day ART treatment. The results of this study differed from the study conducted at Nedjo General Hospital in Ethiopia on reasons for antiretroviral treatment change among adult HIVAIDS patients, which revealed that the majority, 35% (n=41), were WHO stage III, 33.3% (n=39) were WHO stage I, 29.1% (n=34) were WHO stage II, and the minority, 2.6% (n=3) were WHO stage I in their last follow-up, which only used WHO staging and missed treatment staging (Fekadu et al 2019:67).

6.3.1.3.25 Last follow-up TB screening (N=332)

Table 6.14: Frequency distribution of last follow-up TB screening status (N=332)

Variables	Frequency (N)	Percentage (%)	Cumulative percent
Not assessed	6	1.8	1.8
Negative	312	94	95.8
Positive	14	4.2	100
Total	**332**	**100**	

During each follow-up visit, patients on ART underwent TB screening. The results of this study, as indicated in table 6.14, showed that the majority, 94% (n=312) of the patients, screened negative for TB, 4.2% (n=14) tested positive for TB, and the minority, 1.8% (n=6), were not assessed for TB during the last follow-up. These results implied that TB screening performance had been favourable, underscoring the promise of TB prevention in HIV cases.

6.3.1.3.26 TB prophylaxis (INH) (N=332)

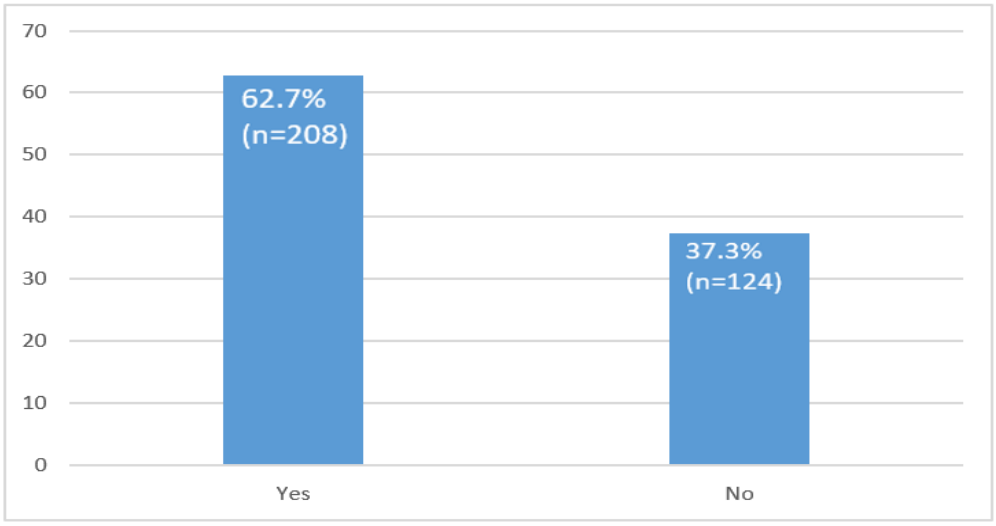


Figure 6. 33: **TB prophylaxis (INH) status (N=332)**

Figure 6.33 shows that the majority, 62.7% (n=208), received INH during their ART treatment, while the minority, 37.3% (n=124), did not receive INH. These results implied that the majority had received TB prevention prophylaxis, which could be crucial in preventing active TB and other opportunistic infections. Regular monitoring and evaluation of TB prophylaxis implementation as per national ART guidelines could optimise patients HIV treatment outcomes.

A study that concurred with this study was conducted in the Amhara region of Ethiopia among individuals living with HIV who initiated same-day ART, showed that the majority, 63.1% (n=273 received INH, 32.8% (n=142) did not receive INH, and the minority, 4.2% (n=18) were not eligible for INH (Ahmed et al 2020:6). The results of this study differed from the study conducted in Northwest Ethiopia on tuberculosis and isoniazid prophylaxis among adult HIV-positive patients on ART, which revealed that the majority, 64.5% (n=216), did not receive INH, while the minority, 35.5% (n=119), received INH for TB prophylaxis (Geremew, Geremew, Tamir, Adem, Tegene & Bayleyegn 2022:5).

6.3.1.3.27 TB treatment (N=332)

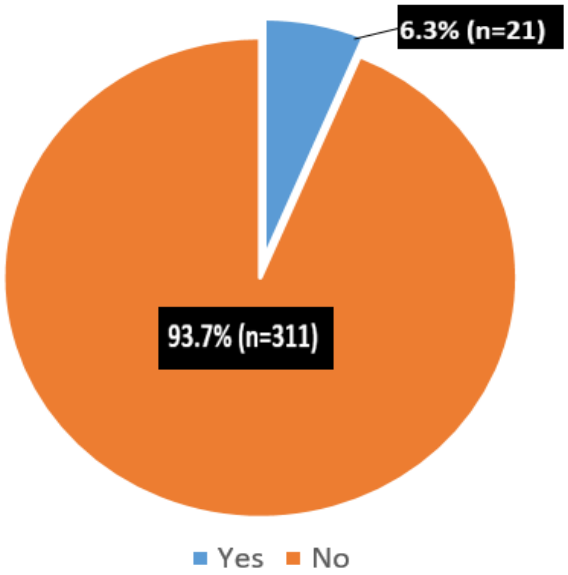


Figure 6. 34: **TB treatment status of patients (N=332)**

Figure 6.34 showed that the majority, 93.7% (n=311), were not diagnosed with TB, while the minority, 6.3% (n=21), had identified TB cases. These results implied that the TB prevention measures were effective. However, the results also indicated that the identification of TB cases might be due to gaps in low INH coverage. Early detection of TB in HIV-positive patients is vital for timely intervention and improved health outcomes. Integrating TB screening and management into comprehensive HIV care could enhance overall well-being and mitigate the impact of opportunistic infections.

A study that concurred with this study was conducted in Iran on factors associated with baseline CD4 cell counts and advanced HIV disease among HIV-positive patients, revealed that the majority, 91.6% (n=1393), were not treated for TB while the minority, 8.4% (n=127), were treated for TB co-infection (Afrashteh, Fararouei, Ghaem & Aryaie 2022:4). The results of this study differed from the study conducted in Haiti on same-day initiation of ART for TB-diagnosed patients, which found the majority, 80.8% (n=202), were not diagnosed with TB and the minority, 19.2% (n=48), of patients were diagnosed with TB cases, in which TB case detection was higher compared to this study (Dorvil et al 2023:10).

6.3.1.3.28 Opportunistic infections present at the last follow-up (N=332)

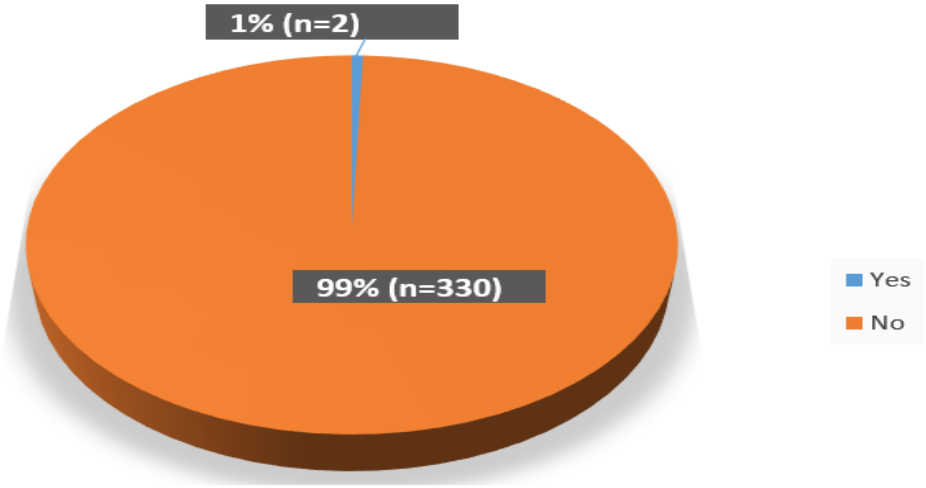


Figure 6. 35: **Last follow-up opportunistic infections status (N=332)**

Figure 6.35 shows that almost 99% (n=330) of patients weren't diagnosed with any opportunistic infection during the last follow-up. A minority of 1% (n=2) were identified as having experienced opportunistic infections during the ART treatment period. These results emphasised the importance of continuous monitoring and early intervention to manage and address opportunistic infections promptly. For patients on ART, it's essential to remain observant of any signs of opportunistic infections and maintain regular follow-ups to ensure timely detection and appropriate management, contributing to better treatment outcomes and patient well-being. The results of this study differed from the study conducted in Latin America on late-onset opportunistic infections while receiving ART, which revealed that 8.4% (n=895) of patients had opportunistic infections in their last follow-up, which was higher compared to this study on opportunistic infections (Núñez, Crabtree-Ramirez, Shepherd, Sterling, Cahn, Veloso, Cortes, Padgett, Gotuzzo, Sierra-Madero & McGowa 2022:471).

In the last follow-up, only two patients were identified with opportunistic infections: TB cases 1% (n=2) (refer to Figure 6.35). These results implied that there was a relatively low occurrence of opportunistic infections among patients started on same-day ART. On the other hand, these results might also suggest low TB case detection. The results of

this study differed from the study conducted in Amhara regional state comprehensive specialised hospitals in Ethiopia on predictors of a high incidence of opportunistic infections among HIV-infected children receiving antiretroviral therapy, which revealed that the majority, 28.33% (n=128) had pneumonia, 26.7% (n=120) had TB, 10.9% (n=49) had diarrhoea, and the minority, 2.5% (n=11) had other opportunistic infections in the last follow-up (Mekonnen, Birhane, Engdaw, Kindie, Ayele & Wondim 2023:7).

6.3.1.3.29 Cotrimoxazole (CPT) prophylaxis (N=332)

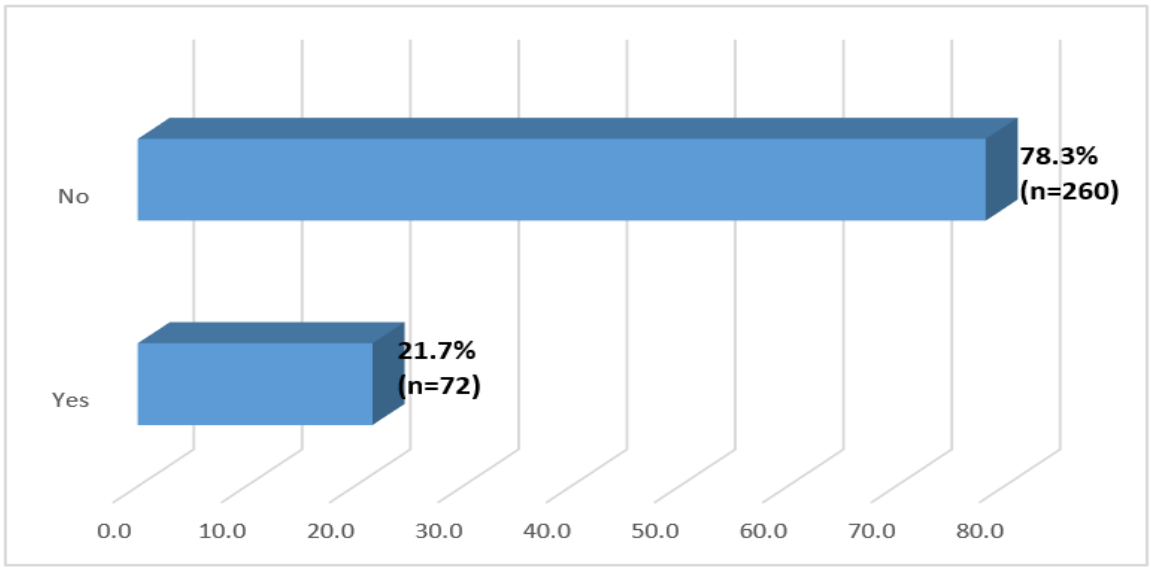


Figure 6. 36: Cotrimoxazole (CPT) prophylaxis status (N=332)

The National Consolidated Guidelines for comprehensive HIV prevention, care and treatment recommend starting CPT for patients with CD4 counts below 350 cells/mm3 and patients with stages 3 and 4 (Ministry of Health Ethiopia 2018:xi). Figure 6.36 showed that the majority, 78.3% (n=260), had not started CPT in the course of ART treatment, while the minority, 21.7% (n=72), had received CPT. These results implied that CPT coverage was high, which might indicate effective prevention of opportunistic infections. A study that concurred with this study was conducted in Amhara regional state comprehensive specialised hospitals in Ethiopia on predictors of a high incidence of opportunistic infections, revealed that the majority, 82.74% (n=374), received CPT and the minority, 17.26% (n=78) did not receive CPT (Mekonnen et al 2023:7) The results of

this study differed from the study conducted at Pawi Hospital in Northwest Ethiopia, which focused on outcomes and factors influencing mortality and successful tracing among patients lost to follow-up from ART and found that 64% (n=211) of patients received CPT during the ART follow-up (Assemie et al 2019:3). This percentage was higher compared to the results of this study, which reported that only 21.7% (n=72) of patients received CPT.

6.3.1.3.30 Patient set up an HIV prevention plan (N=332)

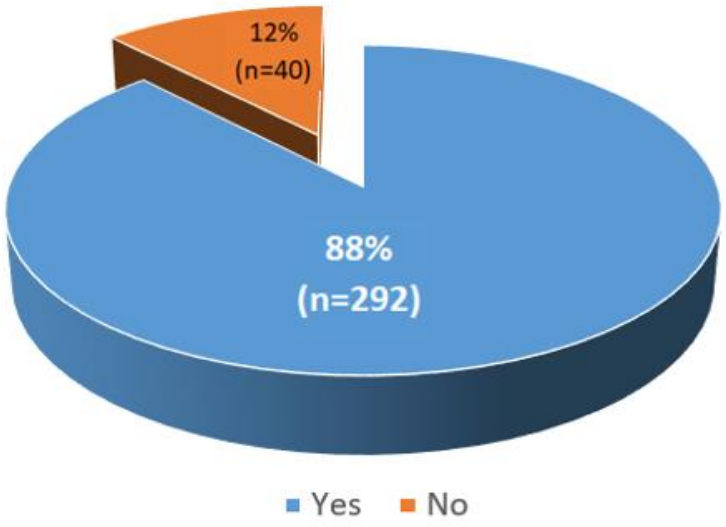


Figure 6. 37: **Patient set up an HIV prevention plan status (N=332)**

Figure 6.37 indicates the patient's HIV prevention plan during the follow-up of HIV chronic care. HIV prevention risk reduction counselling and combination HIV prevention approaches are essential elements of chronic HIV care (Ethiopian Ministry of Health ART Guidelines 2018:44). The Ethiopian national ART follow-up form includes several components for the HIV prevention plan: being assessed for sexually transmitted diseases (STIs), agreeing to disclose to partners, family, or friends, agreeing to bring partners for testing, and agreeing to bring children for testing (refer to Annexure 46 for Ethiopian national ART follow-up). The study results revealed that the majority, 88% (n=292) of patients, had an HIV prevention plan, while the minority, 12% (n=40), had no

HIV prevention plan (refer to Figure 6.37). These results implied that the majority of patients had an HIV prevention plan, indicating that healthcare providers had been actively engaging in prevention efforts. The results also highlighted the importance of HIV prevention planning and risk reduction counselling in chronic HIV care.

6.3.1.3.31 Types of HIV prevention plan (N=292)

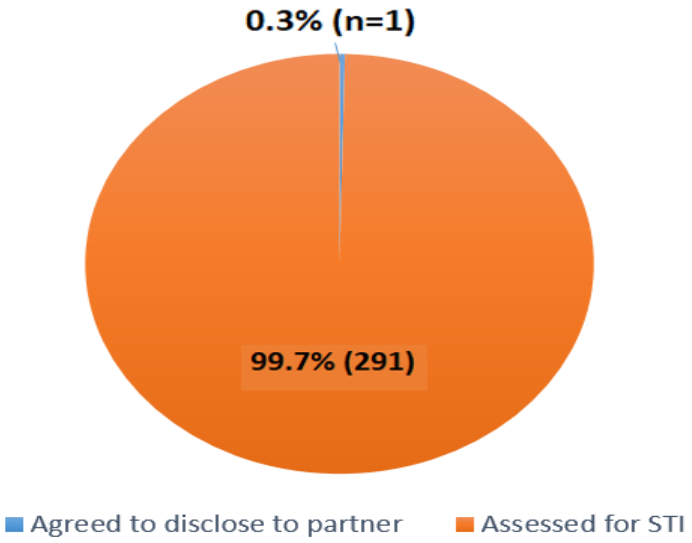


Figure 6. 38: **Types of HIV prevention plans (N=292)**

Figure 6.38 showed that 99.7% (n=291) of patients who started on same-day ART were assessed only for STIs, while a minority of 0.3% (n=1) agreed to disclose to their partner the status of HIV. The results implied that patients started on same-day ART were only assessed for sexually transmitted infections (STIs) as part of their HIV prevention plan, while other aspects of disclosure to partners, family, or friends and bringing partners and children for testing were missed, as observed from the study results.

6.3.2 Part 2: Presented chi-square test of association of variables

The Chi-square test is a statistical method applicable to all data types, and its primary aim is to assess the independence of row subgroups within a dataset. The test's interpretation hinges on the examination of the p-value associated with the Chi-square

statistic. When utilising a 95% confidence level, if this p-value is equal to or less than 0.05, the null hypothesis is rejected in favour of the alternative hypothesis, implying that the responses of the groups can be considered statistically different (McNabb 2021:442). With statistician support in this study, the Chi-square test was used to assess the association between viral load suppression status and gender, age group, retention, stage, area of residence, functional status, and disclosure status. In cases where the data was sparse and the expected frequencies in at least one cell were less than 5, Fisher's exact test was used (Field 2018:1086). The results of the analysis were summarised in Table 6.15, and an association has statistical significance if $P < 0.05$.

6.3.2.1 Association between viral suppression and variables (N=135)

Table 6.15: Frequency distribution of viral suppression Chi-square analysis results (N=135)

Independent variables		Suppressed		Not suppressed		Total	P value
		Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)		
Gender	Male	48	94.1	3	5.9	51	1.00
	Female	78	92.9	6	7.1	84	
Age	18-24	12	100	0	0	12	0.876
	25-34	33	94.3	2	5.7	35	
	35 and above	81	92	7	8	88	
WHO stage	Stage I	68	90.7	7	9.3	75	0.404
	Stage II	34	94.4	2	5.6	36	
	Stage III	23	100	0	0	23	
	Stage IV	1	100	0	0	1	
Residential type	Urban	101	96.2	4	3.8	105	0.026
	Rural	25	83.3	5	16.7	30	
Retention status	Not retained	4	57.1	3	42.9	7	0.006
	Retained	122	95.3	6	4.7	128	
Functional status	Working	117	92.9	9	7.1	126	1.00
	Ambulatory	8	100	0	0	8	
	Bed ridden	1	100	0	0	1	
Disclosure status	Yes	83	92.9	3	7.1	86	0.072
	No	43	100	6	0	49	

The Fisher's exact test results indicated that there was no significant relationship between gender and suppression status (p=1.00). The results showed that suppression status does not differ by gender. A study that concurred with this study was conducted in Brazil on adherence to antiretroviral therapy and viral suppression and revealed that gender has no significant association with viral suppression (Milward de Azevedo Meiners, Araújo Cruz & de Toledo 2023:5). The results of this study differed from the study conducted in Mainland Tanzania concerning HIV viral suppression and its correlated factors among children and adolescents utilising a dolutegravir (DTG)-cantered three-drug antiretroviral regimen, which revealed that gender has a significant association with viral suppression (p<0.001) (Maghembe, de Boer, Marikias, Amour & Mahande 2023:11).

Regarding the age of patients, the result revealed that there was no significant association between viral load suppression and age (p=0.876). These results showed that viral suppression status was not significantly influenced by age group (refer to Table 6.15). A study that concurred with this study was conducted in Brazil on adherence to antiretroviral therapy and viral suppression revealed that age has no significant association with viral suppression (Milward de Azevedo Meiners et al 2023:5). The results of this study differed from the study conducted in the Tabora region of Tanzania, which focused on the factors influencing the lack of viral load suppression among children and adolescents living with HIV and receiving care and treatment, revealed that there was a significant association between age and viral suppression (p<0.001) (Mchomvu, Hussein & Matee 2022:5).

Regarding the WHO stage, the result also showed that there was no significant association between viral suppression status and WHO stage (p=0.404). This showed that viral suppression status was not significantly influenced by WHO stage. The results of this study differed from the study conducted in Mainland Tanzania concerning HIV viral suppression and its correlated factors among children and adolescents utilising a dolutegravir (DTG)-cantered three-drug antiretroviral regimen, which revealed that WHO stage has a significant association with viral suppression (p=0.001) (Maghembe et al 2023:11).

The study results also showed that there was a significant association between resident type and suppression status ($p<0.05$). These results indicated that patients in urban areas were less likely to have suppressed levels compared to those residing in rural areas. A study that concurred with this study was conducted in Northeast Ethiopia, focusing on the effectiveness of enhanced adherence counselling on viral load suppression and its influencing factors, revealed a significant correlation between the type of residence and viral suppression ($p<0.001$) (Diress, Dagne, Alemnew, Adane & Addisu 2020:6). The results of this study differed from the study conducted in Arba Minch General Hospital, Ethiopia, on predictors of time to viral load suppression of adult PLWHIV on ART, which revealed that residential areas have no significant association with viral suppression (Hussen, Mama, Mekonnen, Shegaze, Boti & Shure 2019:756).

The study results revealed that there was a significant association between retention in care and viral suppression status ($p<0.05$) (Table 6.15). These results indicate that patients not retained in care were less likely to have their viral load suppressed compared to those retained in HIV care. A study which concurred with this study was conducted in Mainland Tanzania concerning HIV viral suppression and its correlated factors revealed that WHO stage has a significant association with viral suppression ($p<0.001$) (Maghembe et al 2023:11).

The study results also revealed that there was no significant association between functional status and viral suppression. A study that concurred with this study was conducted in Arba Minch General Hospital, Ethiopia, on predictors of time to viral load suppression of adult PLWHIV on ART revealed that functional status has no significant association with viral suppression (Hussen et al 2019:756).

The study results showed that there was no significant association between HIV disclosure status and suppression status ($p=0.072$). A study that concurred with this study was conducted at Asella Teaching and Referral Hospital in Ethiopia, focusing on the suppression of human immunodeficiency virus (HIV) viral load and the related factors among individuals receiving ART, indicated that there was no significant association between HIV disclosure status and viral load suppression ($p=0.081$) (Sado, Chakso &

Obsie 2022:66).

6.3.3 Part 3: Presented logistic regression analysis

Logistic regression is one of the inferential statistics used in research to test associations between variables. The aim of utilising logistic regression was to analyse the associations among these variables and draw conclusions that could be extended to a broader population. In this study, logistic regression was performed to test relationships between the factors associated with retention in HIV care. Logistic regression (Logit) was used to describe data and explain the relationship between one dependent binary variable and one or more metric (interval or ratio-scale) independent variables (McNabb 2021:216).

In this study, the researcher employed logistic regression to examine the relationship between various factors, including gender, age, marital status, educational level, religion, patient address, patient history of opportunistic infections at enrolment, WHO clinical staging of HIV at enrolment, adherence to ARV treatment during the last follow-up, patient disclosure of HIV status at enrolment, and baseline BMI, in relation to the retention of patients in HIV care.

6.3.3.1 Association between retention and other variables (N=311)

Table 6.16: Logistic regression analysis of retention (N=311)

Variables		**Retention status**		**Odds Ratio**	**Std. Err.**	**z**	**P>|z|**	**95% Conf. Interval**
		Retained	**Not retained**					
		n(%)	**n(%)**					
Gender	Male (ref)	78 (52.7)	70 (47.3)	1.00			0.00	
	Female	118 (72.4)	45 (27.6)	2.890	0.985	3.11	0.002	1.481-5.64
Age	18-24 years (ref)	22 (59.5)	15 (40.5)	1.00			0.00	
	25-34 years	52 (55.9)	41 (44.1)	0.400	0.241	-1.52	0.129	0.123-1.303
	>35 years	122 (67.4)	59 (32.6)	1.166	0.692	0.26	0.260	0.364-3.735
Marital	Single (ref)	33 (52.4)	30 (47.6)	1.00			0.00	

status	Married	103 (65.6)	54 (34.4)	1.566	0.729	0.96	0.96	0.628-3.903
	Divorced	44 (63.8)	25 (36.2)	1.245	0.689	0.40	0.400	0.420-3.684
	Widowed	16 (72.7)	6 (27.3)	3.386	2.717	1.52	1.520	0.702-16.323
Educational status	No formal education	55 (61.8)	34 (38.2)	0.211	0.152	-2.15	0.031	0.051-0.870
	Primary	79 (66.9)	39 (33.1)	0.296	0.210	-1.72	0.086	0.073-1.189
	Secondary	40 (51.9)	37 (48.1)	0.130	0.094	-2.82	0.005	0.031-0.538
	Tertiary (ref)	22 (81.5)	5 (18.5)	1.00			0.00	
Religion	Protestant	28 (50)	28 (50)	0.518	0.215	-1.58	0.114	0..230-1.170
	Catholic	16 (76.2)	5 (23.8)	3.149	2.051	1.76	0.078	0.878-11.293
	Orthodox (ref)	132 (65.7)	69 (34.3)	1.00			0.00	
	Muslim	20 (60.6)	13 (39.4)	1.059	0.553	0.11	0.912	0.380-2.951
Patients address	Urban (ref)	153 (67.4)	74 (32.6)	1.00			0.00	
	Rural	43 (51.2)	41 (48.8)	0.466	0.172	-2.06	0.039	0.226-0.962
Patient history of OI enrolment	Yes (ref)	11 (61.1)	7 (38.9)	1.00			0.00	
	No	185 (63.1)	108 (36.9)	2.116	1.889	0.84	0.40	0.368-12.171
WHO clinical staging of HIV at enrolment	Stage I (ref)	112 (66.7)	56 (33.3)	1.00			0.00	
	Stage II	45 (53.6)	39 (46.4)	0.373	0.138	-2.65	0.008	0.180-0.774
	Stage III	32 (68.1)	15 (31.9)	1.297	0.652	0.52	0.604	0.484-3.475
	Stage IV	7 (58.3)	5 (41.7)	0.907	1.069	-0.08	0.935	0.090-9.144
Last follow-up ARV adherence	Good (ref)	122 (81.3)	28 (18.7)	1.00			0.00	
	Fair	74 (46)	87 (54)	0.091	0.076	-2.86	0.004	0.017-0.471
	Poor	191 (68.5)	88 (31.5)	0.110	0.102	-2.38	0.018	0.017-0.679
Patient have disclosed HIV status at enrolment	Yes (ref)	2 (13.3)	13 (86.7)	1.00			0.00	
	No	3 (17.6)	14 (82.4)	0.155	0.054	5.27	0.000	0.077-0.310
Baseline BMI	Normal (ref)	123 (63.7)	70 (36.3)	1.00			0.00	

	Mild/moderate malnutrition	38 (56.7)	29 (43.3)	0.717	0.275	-0.87	0.387	0.337-1.522
	Severe malnutrition	12 (63.2)	7 (36.8)	1.751	1.321	0.74	0.457	0.399-7.682
	Over/obese weight	23 (71.9)	9 (28.1)	0.537	0.306	-1.09	0.276	0.175-1.643

Table 6.16 shows the logistic regression analysis summary of retention in HIV care status among gender, age, marital status, educational status, religion, patients address, patient history of opportunistic infections at enrolment, who staged HIV at enrolment, last follow-up ARV adherence, HIV disclosed status at enrolment, last follow-up ARV adherence, and baseline BMI results. In the logistic regression analysis, a total of 311 clinical records from patients who initiated same-day ART were included, while 21 clinical records of those transferred to other healthcare facilities were omitted due to the fact that their final outcomes were not known. The logistic regression model indicated that, when adjusting for the effect of the other variables, the effect of age group on retention was not significant.

The study's logistic regression analysis revealed that gender has a significant effect on retention ($\beta=2.890$, $p<0.01$). The results showed that females were three times more likely to be retained in HIV care than males. A study that concurred with this study was conducted on routine data analysis carried out in South Africa, which focused on the immediate commencement of antiretroviral therapy for individuals infected with HIV, indicated that the likelihood of lost to follow-up was reduced for male patients (OR 0.79, $p < 0.001$) (Lilian et al 2020a:7). The results of this study, which differed from the study conducted in rural Mozambique, focusing on lost to follow-up and possibilities for reengagement in HIV care, revealed that there was no discernible distinction between males and females concerning retention rates ($p= 0.554$) (Fuente-Soro et al 2020:5).

The study results also showed that when the effect of the other variables was controlled, the odds of being retained differed significantly by level of education. The odds of being retained when a tertiary education was 0.2 times greater than no formal education, that is, ($\beta=0.212$, $p<0.05$). Similarly, the odds of being retained when a tertiary education was 0.13 times more than a secondary education, which is ($\beta=0.131$, $p<0.01$). The results of this study differed from the study conducted in KwaZulu-Natal, South Africa, on the

influence of same-day ART initiation on retention, which revealed that education was not significantly associated with retention in HIV care (P=0.912) (Govere, Kalinda & Chimbari 2023:4).

The type of residential area also has a significant effect on retention; patients who reside in urban areas were more likely to be retained than those who reside in rural areas, that is, (β=0.467, $p<0.05$). A study that concurred with this study was conducted in HIV facilities in Lilongwe, Malawi, on lost to follow-up before and after initiation of ART, showed patients from rural areas were twice as likely to be lost to HIV (P 0.025) (Tweya, Oboho, Gugsa, Phiri, Rambiki & Banda 2018:7).

The results also showed that adherence to ARV significantly affects retention, such that patients with a good level of adherence were 0.1 times more likely to be retained in comparison to those with a fair level of adherence (β=0.092, $p<0.01$). Similarly, patients with a good level of adherence were 0.11 times more likely to be retained in comparison with those with a poor level of adherence (β=0.110, $p<0.05$). A study conducted in Gondar town, northwest Ethiopia, on the development and validation of a risk prediction model for lost to follow-up among adults on active antiretroviral therapy concurred with this study. It revealed that adherence was significantly associated with patient retention in HIV care ($p<0.001$) (Fentie, Kassa, Tiruneh & Muche 2022:6).

The results of the study revealed that considering the functional status at the final follow-up, the likelihood of retention was 0.17 times greater among working functional status of patients compared to those who were ambulatory, with a coefficient (β=0.167) and a significance level of ($p<0.05$) (refer to Table 6.16). The results of this study differed from the study conducted in Arba Minch General Hospital, Ethiopia, on predictors of time to viral load suppression of adult PLWHIV on ART, which revealed that functional status has no significant association with viral suppression (Hussen et al 2019:756).

The study results further showed that the likelihood of retention was 0.37 times higher for patients in stage I compared to stage II. Patients with WHO stage II were more likely to be retained in HIV care compared to stage I (β=0.373, $p<0.05$). The results of this study

differed from the study conducted in the Gauteng province of South Africa on viral suppression among adolescents receiving HIV treatment, which revealed that WHO has no significant association with viral suppression (Mabizela & Van Wyk 2022:5).

Patient age, marital status, religion, the presence of opportunistic infections, and baseline BMI were not significantly related to retention in HIV care. A study that concurred with this study was conducted in KwaZulu-Natal, South Africa, on the impact of same-day ART initiation on retention, revealed that age (OR: 0.941; 95% CI: 0.734–2.791) exhibited a significant association with viral load detection (Govere et al 2023:5). The results of this study differed from the study conducted in HIV facilities in Lilongwe, Malawi, on lost to follow-up before and after initiation of ART, which showed that BMI and age were significantly associated with retention (P<0.001) (Tweya et al 2018:7). Similarly, a study conducted in urban Kenya, investigating factors linked to adherence and viral suppression among individuals on second-line antiretroviral therapy, demonstrated a significant correlation between BMI and viral suppression (p<0.01), which contradicts these study results (Nyaboke, Ramadhani, Lascko, Awuor, Kirui, Koech, Mutisya, Ngunu & Wangusi 2023:5).

6.4 SUMMARY

This chapter presented the results of the quantitative phase. In summary, this study evaluated the impact of same-day ART initiation on patient retention and viral suppression in HIV care in Ethiopia. The overall retention rate was 59%. Viral suppression rates at 6, 12, and 24 months were 93%, 95%, and 86%, respectively, indicating progress towards the global target of 95% by 2030. These results support the effectiveness of same-day ART initiation in achieving viral suppression. Implementing same-day ART initiation strategies can enhance patient outcomes in Ethiopian HIV care. Continued efforts are necessary to strengthen retention strategies and optimise viral suppression rates to meet global targets. The next chapter presents the strategies for same-day ART initiation and the viral suppression monitoring mechanism.

CHAPTER 7
PHASE 3: STRATEGIES DEVELOPMENT AND VALIDATION

7.1 INTRODUCTION

Quantitative phase data analysis and interpretation were presented in Chapter 6. The purpose of this study was to evaluate a same-day ART initiation regarding viral suppression and retention of patients in HIV care. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients who are lost to follow-up, and viral suppression monitoring mechanisms. An exploratory sequential mixed method design was used, comprising three phases. Phase 1 was a qualitative approach, Phase 2 was a quantitative approach, and Phase 3 was strategies development and validation.

The strategies development and validation were covered in this chapter. The strategies were developed for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms. These strategies were developed based on Phase 1 findings and Phase 2 results integration, a comprehensive literature review, the study's theoretical framework, and a logical reasoning approach. To ensure the quality and efficacy of these strategies, a rigorous validation process was utilised. This validation process entailed seeking input and feedback from healthcare experts working at both the federal and regional levels of the HIV/AIDS programme. The details about strategies' development and validation were discussed below.

7.2 DESCRIPTION OF STRATEGIES

Strategy is about managing the future, which is frequently uncertain (Grundy 2017:35). According to Grundy (2017:35), strategy is all about choice, and whilst there may be many strategic options with good scores, it doesn’t mean that one must do all of them, and certainly not now and all at once. Furthermore, Freedman (2019:164) defined strategy as creating power and making the most of available resources, achieving more than comparisons of relative strength might suggest would be possible.

According to Brunelli and Di Carlo (2020:147), the strategy used for optimising the ratio between outcomes and costs could be based on management principles aimed at orienting organisations towards enhanced organisational efficacy and effectiveness. In this study, the term "strategies" refers to the specific approaches developed by the researcher, which were based on the researcher's findings and results. These strategies are aimed at improving same-day ART initiation, tracking individuals lost to follow-up, and implementing mechanisms for viral suppression, all aimed towards achieving the 2030 global targets.

7.3 PURPOSE OF THE DEVELOPED STRATEGIES

The purpose of these strategies was to provide evidence-based direction to policymakers, programme managers, and healthcare providers to enhance same-day ART initiation, proper tracing of patients started on same-day ART lost from HIV care, and viral suppression monitoring mechanisms at the healthcare facility level. The adoption of these strategies is anticipated to enhance planning and optimise the management of HIV prevention, care, and treatment at the healthcare facility level, which will enable the country to achieve the global targets of 2030.

7.4 SCOPE OF THE STRATEGIES

These strategies aim to enhance same-day ART initiation, improve tracing of those lost to follow-up, and enhance mechanisms for monitoring viral suppression across healthcare facilities providing ART services in Ethiopia. Strategies were developed to serve as a valuable resource for policymakers, national-level strategy developers, regional HIV programme planners, healthcare facility managers, and healthcare providers. This resource facilitates proper planning, enhancement, and implementation of same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms within healthcare facilities, aligning with the global 2030 sustainable agenda. Consequently, these strategies can be effectively employed by policymakers, programme managers, and healthcare providers within the Ethiopian healthcare system.

7.5 METHODOLOGY OF STRATEGIES DEVELOPMENT

Dubey and Kothari (2022:256) defined methodology as a section that deals with measures and procedures utilised to conduct research, which basically contains the sample, scales used, and type of data collected. Leavy (2022:277) also defined methodology as a plan for how research will proceed and how the researcher will combine the different elements of research into a plan that indicates, step by step, how the specific research project will be carried out (merges theory and methods). In this study, the researcher used different methods as guiding principles to identify key strategies for same-day ART initiation, lost to follow-up tracing and viral suppression monitoring mechanisms in HIV prevention, care, and treatment at the healthcare facility level.

7.6 GUIDING PRINCIPLES

The development of the strategies was guided by a qualitative finding through individual in-depth cell phone interviews (refer to Chapter 5 for details), quantitative results in the form of document analysis (refer to Chapter 6), the integration of Phases 1 and 2, the application of a theoretical framework, logical reasoning, and a comprehensive review of pertinent literature. The details of the guiding principles used for the preliminary strategies development, which included the integration of Phases 1 findings and 2 results, the use of a theoretical framework, the logical reasoning approach, and the review of literature used, were discussed below.

7.6.1 Integration of Phase 1 findings and Phase 2 results

Mixed methods research combines an intentional collection of both quantitative and qualitative data with an intentional integration of the data that seeks to minimise the weaknesses and maximise the strengths of each approach (Jason & Glenwick 2016:257). According to Hesse-Biber and Johnson (2015:136), integration is employed to synthesise the redefined concept, the extended theory, the map, and the continuum that facilitates cross-disciplinary understanding or production as a result of a more comprehensive understanding of the issue being examined.

Furthermore, Hesse-Biber and Johnson (2015:242) explained that researchers can integrate or combine different philosophical assumptions and different methods of data collection and analysis, leading to meta-inferences. A meta-inference is defined as the systematic compilation and integration of qualitative studies to expand understanding and develop a unique interpretation of study findings in a selected area (Susan, Grove & Gennifer 2022:522). A meta-inference is an overall conclusion, explanation, or understanding developed through the integration of the inferences obtained from the qualitative and quantitative strands of a mixed methods study (McNabb 2021:368). In this study, the researcher used a joint display to integrate Phase 1 findings and Phase 2 results.

The joint displays provided a framework for integration, breaking down the cognitive process of merging, comparing, relating, and linking qualitative findings and quantitative data or results to assist in identifying meta-inferences (Factor & Ulhøi 2021:193). The researcher integrated Phase 1 findings and Phase 2 results into three distinct areas of strategies development that focus on same-day ART initiation, tracing those lost to follow-up, and viral suppression monitoring mechanisms, in accordance with the research objective. The details of integration regarding same-day ART, tracing those lost to follow-up, and monitoring viral suppression mechanisms are presented below.

7.6.1.1 Integration regarding same-day ART initiation

Same-day ART initiation is one of the thematic areas in which the researcher intended to develop strategies. Same-day ART initiation refers to immediate antiretroviral therapy starting for HIV treatment as soon as possible after the diagnosis of HIV infection, on the same-day the HIV diagnosis is done (Coffey & Bacon 2023:1). Major key concepts were used from qualitative findings to integrate with quantitative results using joint display. Table 7.1 shows the integration of Phases 1 and 2 regarding same-day ART initiation for strategies development.

Table 7.1: Integration of phases 1 and 2 regarding same-day ART initiation

Concepts	Qualitative findings	Quantitative results	Meta-inferences
Lack of disclosure of HIV status	• "Patients consider the medical treatment to be secondary due to the disclosure issue." (Ph3) • "Most people don't like to tell their family about their HIV status." (CM1). • "The second lack of disclosure is due to a fear of stigma." (P5, P4). • "… due to fear of stigma and discrimination, I am afraid to disclose myself. (P1).	Data from quantitative document analysis showed only 46.4% (n=154) disclosed their HIV to their families or friends.	Disclosure status was a problem for patients started on same-day ART.
Patients' lack of knowledge	• "… due to a lack of knowledge regarding HIV transmission methods. HIV will not be transmitted by eating together; it depends on people's knowledge, education, etc. But people isolate you, even walking with you. I think that was the reason." (P5) • "Sorry, I don't know the name of the drug. I take it at night once only." (P2, P4)	Quantitative results revealed that the majority had primary education (38.3% (n=127), followed by no formal education (26.6% (n=95).	Lack of knowledge is a problem, which might be due to the education level of patients.
Dual benefit of same-day AART initiation	• "Same-day ART initiation has a dual benefit that reduces HIV transmission and minimises morbidity and mortality due to opportunistic infections." (N3).	According to the quantitative results at the last follow-up, only 1% (n=2) were presented with an opportunistic infection. But it has no data for HIV transmission reduction.	Same-day ART initiation can reduce opportunistic infections (OI). The OIs identified were also Tb, which can occur in any person.
Same-day ART initiation supports rapid viral load suppression	• "It supports rapid viral load suppression" (Ph1, Ph2). • "Patients started on same-day ART will achieve viral suppression" (N3). • "Same-day ART initiation has benefits for clients in viral suppression, and it is a prevention mechanism for HIV transmission" (N5).	Quantitative results showed that viral load suppression at 6 months was 93% (n=126), at 12 months it was 96% (n=77) and 12 months it was 86% (n=6).	Same-day ART initiation has a positive impact on viral suppression.

Same-day ART initiation supports reducing the lost to follow-up from HIV care IV care	• "Same-day ART initiation can reduce lost to follow-up due to discrimination, stigma, or negligence" (Ph2). • "…same-day ART initiation is preferred because early initiation reduces some time lost to follow-up on pre-ART and reduces the number of clients with advanced HIV diseases..." (Ph4).	Quantitative results showed that 27% (n=90) were lost to follow-up, and retention in care was 59% (n=196).	Lost to follow-up was high with low retention in HIV care, which was expected to be 95% as per the UNAIDS global target.
Challenges related to same-day ART initiation	• "…they are being scheduled for three months, and this results in lost to follow-up and adherence issues." (Ph2).	The quantitative results showed that 99% (n=330) of the patients received a one-month ARV supply.	Patients started on same-day ART were being monitored monthly.
	• "…same-day ART initiation may lead to lost tot follow-up due to lack of time on strong counselling, ... insufficient time to accept the result of HIV… disclosing among the positives…" (Ph4).	Quantitative results showed that 27% (n=90) were lost to follow-up and retention in care was 59% (n=196).	Lost to follow-up was high with low retention in HIV care, which was expected to be 95% as per the UNAIDS global target.

7.6.1.2 Integration regarding lost to follow-up tracing

Lost to follow-up is the second thematic area in which the researcher intended to develop strategies in order to enhance retention in HIV care. The Republic of Uganda Ministry of Health guide for differentiated service delivery models defines lost to follow-up if a patient has not been in the HIV care centre for more than 90 days since their last appointment date (Republic of Uganda, Ministry of Health 2020:10). In this study, key concepts from qualitative findings and quantitative results were integrated, as shown in Table 7.2 below.

Table 7.2: Integration of phases 1 and 2 regarding lost to follow-up

Concepts	Qualitative findings	Quantitative results	Meta-inferences
Patients addresses	• "…a home visit is done if the address, like Kebele or house number, is written and known." (Ph1). But most of them give us fake phone numbers, so we can't reach them (AS4).	The quantitative results showed that 72% (n=239) of patients were from urban areas, 89% (n=294) had their	Significant role of patients' contact addresses in the context of patient tracking.

Concepts	Qualitative findings	Quantitative results	Meta-inferences
	• "…those with no stable address and religion-related issues are some of the most common reasons for lost to follow-up." (N1).	phone numbers, and 78.6% (n=261) of patients had a house number. Patient address is significantly associated with retention that urban areas were more likely to be retained than those who reside in rural areas, that is, (β=0.467, p<0.05).	
Patients' knowledge	• "… due to a lack of knowledge regarding HIV transmission methods. HIV will not be transmitted by eating together; it depends on people's knowledge, education, etc. But people isolate you, even walking with you. I think that was the reason." (P5). • "Sorry, I don't know the name of the drug. I take it at night once only." (P2, P4).	Quantitative results revealed that the majority had primary education (38.3% (n=127), followed by no formal education (26.6% (n=95).	Lack of knowledge is a problem, which might be due to the education level of patients.
Adherence of patients	• "Patients may not hear during counselling. When we provide the ART, they take the medication home, but they may not take it at all or sometimes."(Ph1, Ph3) • "To my understanding, the most common reason patients are lost from HIV care is an adherence problem" (N2). • "…most of them give us fake phone numbers, so we can't reach them (AS4).	Quantitative results showed that adherence to ARV significantly affects retention, such that patients with a good level of adherence were 0.1 times more likely to be retained in comparison to those with a fair level of adherence (β=0.092, p<0.01).	Adherence to ARV has a significant impact on ART to HIV care, which need attention.
Religious-related factors	• "Some patients prefer religious-related actions prior to starting ART (holy water and prey from church leaders)." (N4, N6) • "…retention in HIV care is affected by patients' perception of medication, religious issues, disclosure problems, and stigma..." (N5). • "…the most common issues of lost to follow-up are religious	Quantitative results showed that the majority of patients, 61.7% (n = 205), were Orthodox Christians, and 18.4% (n=61) were Protestants. However, religion is not significantly associated with retention in HIV care.	Orthodox Christians and Protestants were those who encouraged holy water and prey that may lead patients to stop medication, which requires capacity building.

Concepts	Qualitative findings	Quantitative results	Meta-inferences
	and disclosure issues…" (N3).		Religion is not significantly associated with retention in HIV care.
Patients with nutritional problems	• "…transportation fee for patients travelling from distant locations and providing nutritional support to those who are unable to eat." • "It is preferable to begin same-day ART with financial or food assistance for the patient. As they started it before the body deteriorated, I recommend that it should continue" (AS2, AS4).	Quantitative results showed that (n=22) had moderate malnutrition, and 6% (n=20) had severe malnutrition, which indicates a nutritional problem might affect retention. BMI, which is an indicator of nutritional status, was not significantly associated with retention in HIV care.	Nutrition was not significantly affecting retention in HIV care.
Patients HIV disclosure status	• "… factors include distance from the healthcare facility, stigma and disclosure issues" (Ph3) • "…which is a disclosure issue to the partner, is another major reason for failure to follow-up" (N1).	Quantitative results showed that the majority, 53.6% (n=178), of the patients had not disclosed their HIV status to their spouse or family. Quantitative results showed that there was no significant association between HIV disclosure status and suppression status (p=0.072).	Patient disclosure status has no significant association with lost follow-up.
Drug-related impact	• "… it would have been nice if the medication were taken in the form of an injection. This is best suited for same-day ART initiation, as it reduces pill burden, stigma, and discrimination" (AS5). • "…may be many pills given on that date that have an effect on the stomach" (P10).	The quantitative results indicated that, in addition to ARV 21.7% (n=72) of patients were CPT, 62.7% (n = 208) received INH, and 6.3% (n=21) received treatment for tuberculosis (TB) among those who initiated same-day ART.	Additional drugs due to pill burden might result in poor adherence, which leads to lost to follow-up.

7.6.1.3 Integration regarding viral suppression monitoring mechanisms

Viral load suppression is one of the keys to assessing the quality of the ART services provided (Federal Ministry of Health Ethiopia 2018:159). Viral load (VL) is the number of Human Immunodeficiency Virus Ribonucleic Acid (HIV RNA) copies per millilitre of blood, and an undetectable level is a level too low for the virus to be detected by a VL test (AIDS Info Glossary 2021:179). According to the Federal Democratic Republic of Ethiopia National Consolidated ART Guidelines (Federal Ministry of Health Ethiopia 2018:173), viral load suppression was defined as the percentage of patients on ART with a suppressed viral load <1000 copies/ ml in the past 12 months. Viral suppression could be achieved with good adherence and follow-up viral load testing. In this study, the researcher intended to develop a strategy for viral suppression monitoring mechanisms to achieve the 95% global targets. The integration of qualitative findings and quantitative results regarding viral load testing and suppression is presented in Table 7.3 below.

Table 7.3: Integration of phases 1 and 2 regarding viral suppression monitoring mechanisms

Concepts	Qualitative findings	Quantitative results	Meta-inferences
Viral load performance	• "…individual levels to follow patients started on same-day ART at any time through telephone regarding … viral load monitoring" (PH3). • "…we currently do not have a separate viral load monitoring system for those initiated on same-day ART." (N3).	Quantitative results showed that viral load test performance at 6 months was 40% (n=135), at 12 months it was 24.4% (n=81) and at 24 months it was 2.1% (n = 7).	Viral load testing performance was low.
	• "…we check their viral load once at every six months and every year." (CM2). • "...we conduct viral load testing at months then every year for all patients unless high viral load." (Ph2).	Quantitative results showed that viral load was done exactly at 6 months: 59.3% (n=80), 12 months: 28.4% (n=23), and at 24 months: 57.1% (n=4).	There was low viral load testing at 6, 12, and 24 months.
Viral suppression status	• "…it supports rapid viral load suppression…" (Ph1). • "…the same-day ART initiation will build immunity and enable the viral load to	Quantitative results showed that viral load suppression at 6 months was 93% (n=126), at12 months	Viral suppression was promising to achieve global targets of 95%.

	be suppressed... (Ph3). • "The patient started ART on the same-day will have suppressed viral load result." (AS1, AS3). • "…reduction of the viral load in their bodies and immunity strengthening..." (CM2). "…Same-day ART has good viral suppression…" (CM4).	it was 95% (n=77), at 24 months it was 86% (n=6).	
Factors affect viral suppression	• "...there will be poor adherence, the viral load may not be suppressed as expected." (Ph4). • "…newly diagnosed patients should be followed every month by the clinician who initiated the patient for at least the first six months. Until the first viral load is determined, which will tell us whether the patient is adherent to medication." (Ph1).	Quantitative results revealed that at the last follow-up, 89.8% (n=298) of patients had good adherence. Viral load suppression at 6 months was 93% (n=126), at 12 months it was 95% (n = 77), and at 24 months it was 86% (n=6).	Adherence and viral load have a direct relationship.
Patients' knowledge about viral load	• "…Patients should also be able to ask questions legally rather than be forced to give blood in silence." (N7). This showed that patients give blood for viral load, but they don't know why they are giving that blood.	Quantitative results revealed that the majority had primary education (38.3% (n=127), followed by no formal education (26.6% (n=95).	Patient's knowledge and awareness have contributed to viral load testing and suppression.

7.6.2 Application of a theoretical framework for strategies development

In this study, the Health Belief Model (HBM) was used as a component of the methodology for developing strategies. The Health Belief Model was employed in this study to provide a framework for connecting study findings with existing knowledge and translating these insights into practical strategies aimed at improving same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms at the healthcare facility level. The Health Belief Model is a theoretical model that can be used to guide health promotion and disease prevention programmes. It is used to explain and predict individual changes in health behaviours based on factors that influence health behaviours, such as an individual's perceived susceptibility, perceived benefits, perceived

barriers to action, cues to action, and self-efficacy (Rural Health Information Hub online [r.h]). This model helped to understand how knowledge and attitudes of healthcare providers and patients practices on same-day ART initiation were lost to follow-up tracing and viral suppression monitoring mechanisms. The constructs of a health belief model utilised to guide the development of strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms are presented as follows:

7.6.2.1 Perceived susceptibility

The subjective belief that a person is vulnerable to a specific health condition or its consequences is referred to as perceived susceptibility (Sharma 2017:61). The application of perceived susceptibility in the context of same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms is vital for HIV care and treatment. Perceived susceptibility to the fear of being lost to follow-up and a preference to delay same-day ART initiation were identified among healthcare providers. Patients also exhibited perceived susceptibility, particularly in relation to concerns about side effects and the potential stigma associated with treatment adherence.

Recognising these perceived susceptibilities provides valuable insights for intervention. It underscores the need for strategies and initiatives aimed at addressing these concerns, particularly in the context of same-day ART initiation within healthcare facilities. These interventions can play a crucial role in promoting better healthcare access, adherence, and, ultimately, improved health outcomes for patients and achieving the 2023 global targets for the country.

7.6.2.2 Perceived severity

Perceived severity refers to a person's subjective belief about how severe the negative impact of that exposure is perceived to be (Sharma 2017:62). Regarding the application of perceived severity in the context of same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms, it plays an important role in influencing patient behaviour and health outcomes. This study highlighted the profound impact of HIV

patients' perceptions of the severity of HIV outcomes on their treatment initiation, subsequently affecting their overall well-being. To address this, strategies have been developed to underscore the severity of untreated HIV and its long-term consequences for health. Effective communication about the severe outcomes resulting from non-adherence to HIV care, such as drug resistance and compromised immune function, is crucial. Additionally, monitoring high viral loads, including drug resistance, disease progression, and the need for more comprehensive treatment, is essential in promoting patient understanding and driving positive health behaviours. These actions aim to enhance patient awareness of the gravity of their condition and the importance of timely and consistent treatment, ultimately leading to improved health outcomes.

7.6.2.3 Perceived benefit

Perception of barriers refers to beliefs about the actual and perceived cost of adopting a new health behaviour (Sharma 2017:63). The application of perceived benefits plays an important role in same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms to address barriers and motivate individuals to engage in healthcare and treatment.

For same-day ART initiation, strategies have been developed based on the perceived benefits, which included improved lifestyle, reduced transmission risk, and extended life expectancy. These benefits should be effectively communicated to patients to motivate them to initiate treatment promptly. In the case of lost to follow-up tracing, the perceived benefits of returning to care were emphasised, including the prospect of better health, increased social support, and greater access to treatment options. These benefits should be presented to individuals to encourage them to re-engage with their healthcare. Regarding the viral suppression monitoring mechanisms, perceived benefits are instrumental in promoting the importance of viral load monitoring. These benefits include personalised treatment adjustments, improved health outcomes, and a reduced risk of HIV transmission. By emphasising these benefits, individuals should be informed and motivated to adhere to viral suppression monitoring recommendations, ultimately leading to better health and wellbeing.

7.6.2.4 Perceived barriers

Perception of barriers refers to beliefs about the actual and perceived cost of adopting a new health behaviour (Sharma 2017:63). Perceptions of time, financial cost, or perceived benefits can all be barriers from the patient's perspective. In the developed strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms, it is crucial to acknowledge and address perceived barriers that individuals may face in their healthcare journey. These barriers encompass a range of factors, including stigma, transportation issues, financial constraints, and concerns about side effects. To effectively implement the strategies, it is essential to recognise the significance of these perceived barriers in influencing healthcare decisions.

Stigma, for instance, can deter individuals from seeking timely care or returning for follow-up appointments. Transportation challenges may delay their ability to access healthcare facilities, while financial constraints can limit their capacity to afford necessary treatments and tests. Furthermore, concerns about potential side effects or the perceived inaccessibility of treatment might lead to a reluctance to adhere to prescribed regimens. To address these barriers, healthcare providers should implement strategies that encompass education, support, and intervention. This includes educating patients about the importance of treatment adherence, providing resources for managing side effects, and ensuring that they have access to affordable care options.

Moreover, addressing concerns about the cost, accessibility, and convenience of viral load testing and patients' education on the importance of viral load testing can address these perceived barriers. By taking appropriate action to understand and mitigate these obstacles, healthcare systems can foster a more inclusive and effective approach to HIV care and management.

7.6.2.5 Cues to action

A cue to action is an external or internal precipitating force that causes a person to feel compelled to engage in a specific health behaviour (Sharma 2017:63). The application of

cues to action in the context of same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms is instrumental in encouraging individuals to take proactive steps towards their healthcare and treatment. Implementing actions that prompt individuals to act can significantly enhance the effectiveness of these mechanisms.

Initiating same-day ART treatment can serve as a powerful cue to action. By providing immediate access to treatment, individuals are more likely to initiate ART promptly, reducing the gap between diagnosis and treatment initiation once they understand the benefit of same-day ART initiation. Utilising appointment reminders is an effective strategy to keep patients engaged with their healthcare through an automated system for their appointment data. These reminders could be in the form of text messages or phone calls, ensuring that individuals do not miss important appointments. Community outreach and peer support programmes could further serve as valuable cues to action. Patients may be more motivated to return for follow-up care when they receive support and encouragement from their peers or through community engagement initiatives. By applying these activities as cues to action, healthcare systems could facilitate and encourage individuals to initiate treatment promptly, adhere to follow-up care, and monitor their viral suppression effectively.

7.6.3 Logical reasoning application in strategies development

Logic is a scientific discipline focused on establishing valid connections between ideas to enhance comprehension, achieve truth, or elucidate and foresee phenomena (Grove, Burns & Gray 2021:90). According to Grove et al (2021:90), logical reasoning is used to dissect components of a situation or conclusion, examine each carefully, and analyse relationships among the parts. The rules of logical reasoning, including the processes of induction and deduction, are invaluable in guiding research and enhancing its significance in the context of decision-making (Bairagi & Munot 2019:24). Analysis of evidence involves the utilisation of logical reasoning, augmented by methods and techniques, both qualitative and quantitative, to produce a solution to the problem (Mukherjee 2019:9).

In this study to develop strategies for same-day ART initiation, lost to follow-up tracing,

and viral suppression monitoring mechanisms, the researcher employed a logical reasoning approach. This approach begins with understanding the research context, reviewing qualitative findings and quantitative results, identifying common themes, prioritising issues and challenges, setting clear objectives, brainstorming potential strategies, assessing feasibility, and analysing the risks and benefits of the strategies to be developed. This systematic, evidence-based method ensures that the strategies are practical, effective, and ethically sound, addressing critical issues at the healthcare facility level. The application of induction and deduction logical reasoning to strategies development was discussed below.

7.6.3.1 Inductive reasoning

Inductive reasoning is a process in which a researcher begins with multiple specific observations about a particular phenomenon and then formulates broader generalisations about the phenomenon (Leedy & Ormrod 2021:387). The application of inductive reasoning to the development of strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms involves a systematic process. It begins with the collection of specific observations and data from qualitative findings and quantitative results.

These observations are then analysed to uncover recurring patterns and commonalities within each area, leading to generalisations. For instance, both quantitative results and qualitative findings aver that proactive patient education significantly enhances same-day ART initiation. With these generalised findings as a foundation, strategies are formulated for each area, such as implementing standardised patient education or automated appointment reminders. This inductive approach ensures the development of practical, evidence-based solutions in enhancing healthcare facility practices in same-day ART initiation, lost to follow-up tracing and viral suppression monitoring mechanisms.

7.6.3.2 Deductive reasoning

Deductive reasoning is a process in which a researcher begins with one or more premises

and then identifies conclusions that can undisputedly be drawn from the premise (Leedy & Ormrod 2021:386). Deductive reasoning was applied to same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms, which involved critical thinking. This begins with the formulation of specific premises for each area, such as immediate treatment leading to improved patient outcomes, timely reminders reducing missed appointments, and real-time data tracking enabling early viral suppression intervention. From these premises, logical conclusions were drawn, like the implementation of counselling programmes, appointment reminders, and real-time data tracking for prompt interventions. The deductions are then viewed, assuming that by implementing these strategies and collecting data to assess their effectiveness in achieving the desired outcomes. This systematic application of deductive reasoning ensures logically sound and well-supported strategies for enhancing same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms.

7.6.4 Literature review

A literature review is an overview of the available research for a specific scientific topic and summarises existing research to answer questions, provide context for new research, or identify important gaps in the existing body of literature (Hempel 2020:3). The purpose of a research background literature review is to explain that reasoning and those choices to the reader through a comparison with other research (Harris 2019:140). In this study, the purpose of conducting a literature review was to develop comprehensive approaches in order to develop strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms.

The researcher conducted a literature review, which is a crucial tool in shaping strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms, in addition to the integration of qualitative findings and quantitative results, theoretical framework application, and logical reasoning. It helped the researcher identify best practices and evidence-based approaches, benchmark current practices, recognise challenges and barriers, review different articles, gather supporting data and evidence, and learn from lessons from similar initiatives. In this context, the researcher referred to

relevant literature for each key strategy, utilising the information found to craft detailed descriptions for the development of these strategies, aligning with the proposed approaches outlined in the study.

7.7 MAJOR IDENTIFIED GAPS FOR STRATEGIES DEVELOPMENT

The study aimed not only to identify gaps related to same-day ART initiation and patient follow-up but also to develop strategies to address those identified gaps or challenges. By integrating Phases 1 and 2, applying the theoretical framework, employing logical reasoning, and synthesising the literature review, the researcher identified significant gaps. These include deficiencies in patient knowledge and counselling, readiness for same-day ART initiation, information and education provision, and pre-ART counselling. Additionally, there were gaps in performance monitoring and evaluation, systems to reduce patient lost to follow-up, and the capacity of case managers and adherence supporters. The lack of central databases and digital systems led to poor patient monitoring, resulting in duplication or retesting, and there was insufficient financial and food assistance, awareness campaigns, and community and religious leader engagement in capacity building. The study also highlighted poor patient reminder systems, the absence of a focal person for viral load laboratory and clinical follow-up, inadequate regular capacity building for ART clinic healthcare providers, and insufficient follow-up on healthcare providers' responsibilities in HIV service provision. These identified gaps have guided the development of targeted strategies to address these issues.

7.8 PRELIMINARY STRATEGIES AND THEIR OPERATIONALISATION

7.8.1 Introduction

In the era of public health, combating infectious diseases, particularly HIV, requires innovative strategies encompassing prevention, timely diagnosis, treatment initiation, and continuous patient monitoring. Despite progress in HIV management, challenges like delayed ART initiation, lost to follow-up patients, and inadequate viral suppression and testing monitoring persist, hindering the achievement of global targets of 95% by 2030.

To address the potential findings in this study, the researcher proposed comprehensive strategies focused on same-day ART initiation, tracing lost to follow-up patients, and improving mechanisms for monitoring viral suppression. These strategies were developed based on qualitative findings and quantitative results, integrating findings and results from both strands, applying theoretical frameworks, logical reasoning, and a literature review. These key strategies were categorised into three categories based on the research objective: strategies for same-day ART initiation, lost to follow-up tracing, and enhanced viral suppression monitoring mechanisms. The following preliminary proposed strategies were operationalised, amended, and adopted as interim strategies. Interim strategies were sent to health experts working in the HIV/AIDS programme for review and validation. Final strategies were adopted from interim strategies after validation. The details of each strategy description, expected outcome, and activities to be done to meet the strategies were discussed below.

7.8.2 Objective of developed strategies

The objective of developing strategies for same-day ART initiation, lost to follow-up tracing, and enhanced viral suppression monitoring mechanisms was to optimise the HIV care continuum by reducing delays in treatment initiation, improving patient retention, and ensuring effective viral suppression monitoring mechanisms. These strategies aim to enhance healthcare facilities same-day ART delivery, establish robust mechanisms for tracing and maintaining patients in care, and suppress viral load, ultimately contributing to improved health outcomes and progress towards the global HIV control targets of 2030.

7.8.3 Preliminary strategies for same-day ART initiation

Same-day ART initiation refers to immediate antiretroviral therapy, starting HIV treatment as soon as possible after the diagnosis of HIV infection, on the same-day the HIV diagnosis is done (Coffey & Bacon 2023:1). Based on the integration of phases 1 and 2, the use of a theoretical framework, the logical reasoning approach, and the review of relevant literature approaches, which guided the researcher to develop key strategies to

ensure same-day ART initiation effectiveness to enhance HIV care and treatment. These strategies included comprehensive patient counselling, assessing patient readiness, enhancing information and education provision, offering in-depth counselling, and implementing careful monitoring and evaluation protocols.

Additionally, the ultimate goal is to not only initiate treatment promptly but also maintain patient engagement and minimise lost to follow-up, thus fostering an environment of optimal care and support. For same-day ART initiation, the researcher identified six key preliminary strategies to be implemented at the healthcare facility level. The preliminary strategies for same-day ART initiation were developed and operationalised by providing a rationale for their validation and supporting them with literature. They are discussed as follows:

7.8.3.1 Key strategy 1: Patient knowledge and counselling

7.8.3.1.1 Descriptions

Patient knowledge and counselling involve the process of educating and preparing HIV-positive patients for same-day ART initiation. It includes explaining the diagnosis, treatment plan, potential challenges, and benefits to ensure patients have a clear understanding of their situation and ART treatment. The study findings revealed that there is a lack of consistent and structured counselling and a uniform point of contact for newly diagnosed HIV-positive patients. This absence of standardised care contributes to patient confusion and the initiation of ART on the same-day, often without adequate knowledge and support.

Consequently, some patients may refuse ART or drop out of care prematurely after starting same-day ART due to counselling and knowledge gaps. A study conducted in Lusaka, Zambia, on patient-reported reasons for declining same-day antiretroviral therapy initiation showed that patients lack knowledge about the benefits of same-day linkage to care and ART initiation (Pry et al 2020:3). This indicated that the patient's knowledge assessment and acceptance of same-day ART initiation should be ensured

prior to same-day ART initiation. Similarly, a study conducted in Ethiopia on same-day ART initiation and associated factors among HIV-positive individuals in Northwest Ethiopia revealed that educational status is one of the factors associated with uptake of same-day ART (Moges et al 2020b:8).

7.8.3.1.2 Expected outcome

- ❖ Improve patients' knowledge and acceptance of same-day ART initiation, with 95% retention of HIV care.

7.8.3.1.3 Key activities to be done

- Conducting multiple in-depth counselling sessions with healthcare providers (case managers, adherence supporters, and ART nurses or physicians).
- Customising counselling content based on the patient's educational level and needs.
- Emphasising on the benefits of same-day ART, adherence, and support.
- Addressing patient concerns and questions related to HIV and ART (encourage patients to ask questions, giving sufficient time for patients newly started on same-day ART).
- Utilising effective communication techniques to enhance patient understanding and readiness using different posters and flyers.

7.8.3.2 Key strategy 2: Patient readiness for same-day ART initiation

7.8.3.2.1 Descriptions

Assessing and ensuring HIV-positive patients are psychologically, emotionally, and physically prepared to start same-day ART initiation is another key strategy area that requires attention prior to same-day ART initiation. It involves evaluating their willingness and ability to adhere to the treatment plan that should be agreed upon between the patients and healthcare providers. The study findings and results indicated that some

healthcare providers may not prioritise patient engagement and communication. This can lead to the initiation of ART without adequately assessing patient readiness and preferences, whose final outcome could be lost from HIV care.

A rapid assessment conducted in Toronto, Canada, on immediate ART initiation showed that despite the benefits of initiating ART immediately, there are several reasons why initiating ART after being diagnosed with HIV may be delayed due to the patient readiness model of ART, where a patient's support system, coping skills, and HIV knowledge are considered before ART is started (Rapid Response Service 2021:3). This clearly showed that patient readiness assessments should be conducted extensively prior to same-day ART initiation to improve health outcomes and reduce the lost to follow-up. The researcher suggests that, if possible, there should be a signed agreement between patients and healthcare providers that shows readiness assessment and agreement.

7.8.3.2.2 Expected outcome

- ❖ Assessed patient readiness that leads to higher treatment adherence, improved health outcomes, and reduced lost to follow-up.

7.8.3.2.3 Key activities to be done

- Conducting comprehensive pre-same-day ART initiation counselling to address concerns, misconceptions, and emotional challenges.
- Assessing the patient's knowledge of the diagnosis, treatment, and potential obstacles.
- Determining the patient's willingness and commitment to adhere to the treatment plan.
- Providing emotional support and addressing stigma-related fears and concerns.
- Collaborations among healthcare providers to customise counselling based on individual patient needs (one-to-one counselling).

7.8.3.3 Key strategy 3: Enhanced information and education provision

7.8.3.3.1 Descriptions

Enhanced information and education provision involves improving the dissemination of accurate and accessible information related to HIV, ART, and same-day ART initiation to patients and the community. This aims to empower patients with knowledge about their condition and treatment options and decrease stigma and discrimination. Different communication platforms can play an important role in enhanced information and education provision, which leads to better treatment of which national broadcasts should play a role in creating awareness.

Different associations of HIV-positive patients, clubs at school and community, and written materials that are friendly and usable can play a vital role in enhanced information and education provisions. The studies conducted on rapid and same-day ART initiation explore the rapid and same-day initiation of ART in Asian countries, with a specific emphasis on Taiwan, Thailand, Singapore, and the Republic of Korea, underscoring the importance for healthcare providers to communicate to individuals with HIV the proven benefits of this approach based on assessments across diverse settings (Hung et al 2022:8).

The community and HIV-positive patients started on same-day ART can greatly benefit from more information and education provided by national broadcasters, which can also help to reduce stigma and discrimination that may hinder patients' adherence to treatment. A study conducted in Uganda on the role of mass media campaigns in improving adherence to ART showed that the messages that the participants had received in the mass media campaigns included adherence to ART, stigma, family planning, condom use, circumcision, abstinence, counselling and testing, positive living, as well as antenatal care, which benefit the patients in HIV care (Akankunda et al 2022:400).

The Federal Ministry of Health consolidated ART Guidelines (Federal Ministry of Health

Ethiopia 2018: 140) and emphasised the importance of engagement and integration with various stakeholders, including community health workers, case managers, adherence supporters, volunteers, people living with HIV for peer support, patient education and counselling, community-level support for patients and their families, and access to accurate information. However, implementing these recommendations in the current healthcare system of the country is not feasible.

7.8.3.3.2 Expected outcome

- ❖ Enhanced information and education provision leads to better treatment adherence, reduced stigma, improved health outcomes, and reduced lost to follow-up rates below 5%.

7.8.3.3.3 Key activities to be done

- Developing clear and patient-friendly educational materials about HIV, ART, and same-day ART initiation.
- Conducting regular group or one-on-one educational sessions for patients.
- Providing information on treatment regimens, potential side effects, and the importance of adherence.
- Encouraging patients to ask questions and seek clarification on any concerns.
- Collaborating with community health workers, religious leaders, and support groups to facilitate peer education.
- Ensuring culturally sensitive and language-appropriate materials for diverse patient groups.
- Utilising multimedia, such as TV, radio, videos, or pamphlets, to enhance the educational experience.

7.8.3.4 Key strategy 4: In-depth counselling for patients

7.8.3.4.1 Descriptions

In-depth counselling entails meeting the emotional, psychological, and informational requirements of HIV-positive patients during counselling sessions. The goal of this type of counselling is to make sure that patients are supported and well-prepared as they move towards starting ART on the same-day. A qualitative study conducted at an urban HIV clinic in Kampala, Uganda, on the perspectives of people living with HIV on barriers to timely ART initiation reported that at the time of receiving the HIV-positive results, patients reported having experienced fear manifesting as emotional and psychological distress followed by immediate denial of results (Kiyingi, Nankabirwa, Wiltshire, Nangendo, Kiweewa, Katahoire & Semitala 2023:4).

This showed in-depth counselling to support the patient in accepting the result and being confident enough to start ART on the same-day. Another qualitative study conducted in Malawi on improving ART initiation among men who use HIV self-testing showed that without adequate counselling, the same fears and misconceptions that stopped men from testing at a facility also stopped them from linking to care once they knew their HIV status (Hubbard, Mphande, Phiri, Balakasi, Hoffman, Daniels, Choko, Coates & Dovel 2022:5). The provided evidence clearly indicated that comprehensive patient counselling significantly contributes to successful linkage, initiation of ART, and retention in HIV care and treatment.

7.8.3.4.2 Expected outcome

- ❖ Confident, knowledgeable, and equipped patients to make decisions regarding their treatment, having emotionally and psychologically prepared for same-day ART initiation.

7.8.3.4.3 Key activities to be done

- Conducting one-to-one counselling sessions with patients to address their

specific concerns and questions;

- Assessing the emotional and psychological readiness of patients to start ART on the same-day;
- Providing information about the benefits and potential side effects of ART;
- Offering guidance on disclosure to family and partners;
- Addressing any fears, misconceptions, or stigma-related concerns;
- Encouraging open communication, allowing patients to express their feelings and uncertainties;
- Empowering patients to actively participate in their care decisions; and
- Establishing a supportive and trusting patient-provider relationship.

7.8.3.5 Key strategy 5: Monitoring and evaluation of performance

7.8.3.5.1 Descriptions

Regular monitoring and evaluation for patients initiated on same-day ART initiation involve the systematic tracking, assessment, and analysis of patient progress and healthcare processes. As a new initiative, same-day ART initiated patients should be assessed and monitored for the success of same-day ART initiation. Monitoring and evaluation aim to ensure that the treatment programme operates effectively and that patients receive optimal care and support. The Federal Ministry of Health's consolidated ART Guidelines (Federal Ministry of Health Ethiopia 2018:140) stated that to address the absence of a care monitoring system, it is crucial to establish comprehensive patient monitoring systems throughout the entire care continuum.

This should include the implementation of cohort analysis and patient tracking systems. However, it was not clearly specified how the implementation would take place, and cohort analysis was primarily focused on six-month and twelve-month intervals, lacking an intensive patient follow-up for close monitoring. Regularly monitoring and evaluating patient medication adherence, treatment effectiveness, appointment attendance, and data analysis while providing additional support, engaging with the healthcare team, and reporting findings to enhance and optimise HIV care and treatment systems should be

implemented for patient close monitoring and evaluation to meet the global 2030 target. A study conducted in KwaZulu-Natal, South Africa, on prevention and treatment scale-up and community HIV incidence revealed that a plan of data collection for the purpose of programme monitoring and evaluation should be built into the programmatic implementation of HIV prevention and treatment services (Kong 2019:2).

7.8.3.5.2 Expected outcome

- ❖ Ensured patients' adherence to treatment regimens, address issues early, enhance healthcare quality, reduce lost to follow-up rates, monitor patient progress, enable timely treatment adjustments based on patient needs, improve clinical outcomes and patient satisfaction, and provide insights for programme efficiency and effectiveness.

7.8.3.5.3 Key activities to be undertaken

- Regularly reviewing patient records to assess adherence to prescribed medication;
- Conducting viral load tests and other clinical assessments at specific intervals to monitor treatment effectiveness;
- Tracking and documenting any missed appointments or lost to follow-up;
- Analysing data on treatment outcomes, patient satisfaction, and adherence rates;
- Identifying patients who may require additional support or counselling;
- Engaging in regular discussions and case reviews with the healthcare team;
- Ensuring data accuracy and integrity to inform clinical decisions;
- Reporting findings to relevant healthcare authorities and stakeholders;
- Utilising data to refine and improve the programme's strategies and protocols; and
- Collaborating with other healthcare unit providers to address challenges and implement tailored solutions.

7.8.3.6 Key strategy 6: Reduction of lost to follow-up

7.8.3.6.1 Descriptions

Implementing strategies to reduce lost to follow-up under same-day ART initiation involved developing comprehensive approaches to keep patients engaged in care and treatment, addressing the various factors contributing to lost patients, and establishing efficient tracking mechanisms. Other mechanisms include establishing patient-provider relationships that create smooth communication for challenge resolution and home-to-home visits. A study conducted in Gauteng Province, South Africa, on patient perspectives of the quality of same-day antiretroviral therapy initiation revealed that participants recommended having a nurse who is dedicated to handling new patients in order to improve the quality of the counselling and provider-patient relations (Scott et al 2021:180).

The patient's provider's relationship has a pivotal role in lost to follow-up reduction as a result of a friendly care provision relationship. The study findings indicated that assigning a dedicated nurse or provider for patient follow-up when initiating same-day ART is recommended, as it enhances the quality of counselling and strengthens provider-patient relationships to reduce lost to follow-up. A study conducted in Haiti on patient-provider communication and information, motivation, and behavioural skills in HIV-positive adults initiating ART revealed that there was low participatory decision-making style, HIV-specific information, and quality of adherence dialogue between patients and providers (Ramaiya et al 2020:4). This is a result of poor patient-provider' relationships, which lead to lost to follow-up. Similarly, a study conducted in rural Mozambique focused on lost to follow-up and opportunities for reengagement in HIV care found that once patients enrolled in care, the most common barriers were fear of being badly treated by health personnel and work responsibilities (Fuente-Soro et al 2020:3).

7.8.3.6.2 Expected outcome

- ❖ Reduced the number of patients lost to follow-up, ensuring a standard retention rate

of 95%.

7.8.3.6.3 Key activities to be done

- Adherence supporters and case managers to conduct scheduled phone calls to reach out to patients to assess the patients' well-being, discuss any challenges, and remind them of upcoming appointments through a mobile automated system;
- Conduct home visits in cases where patients couldn't be reached via phone or had expressed concerns during calls;
- Trained case managers visited the patients at their homes to check on their health status, assess their living conditions, and understand any unique challenges they might be facing;
- Healthcare facilities to collaborate with partner organisations, community-based groups, religious leaders, and local support networks to create awareness; and
- Newly started on ART follow-up in a separate clinic followed by one nurse or physician for the first six months to address each patient's specific needs, thereby increasing the likelihood of keeping them engaged in their treatment and care.

7.8.4 Preliminary strategies for lost to follow-up tracing

The Republic of Uganda Ministry of Health guide for differentiated service delivery models defines lost to follow-up if a patient has not been to the HIV care centre for more than 90 days since their last appointment date (Republic of Uganda Ministry of Health 2020:10). The objective of initiating ART on the same-day is to ensure the retention of patients in care, actively tracing those lost from HIV care, with the successful re-engagement of patients being a critical aspect of their ongoing HIV care and treatment. Strategies for the lost to follow-up tracing approach include the key roles of case managers and adherence supporters, the utilisation of central databases and digital systems, the provision of financial and food assistance, and the execution of awareness campaigns.

By implementing this strategy, the healthcare facility can address lost to follow-up and tracing of patients lost from care to enhance the effectiveness of HIV care and treatment programmes. Six key preliminary strategies have been identified for lost to follow-up tracing that should be implemented at healthcare facilities. The preliminary strategies for lost to follow-up were developed and operationalised by providing a rationale for their validation and supporting them with literature. They are discussed as follows:

7.8.4.1 Key strategy 7: Enhance the capacity of case managers and adherence supporters

7.8.4.1.1 Descriptions

Enhancing the capacity of case managers and adherence supporters involves providing targeted training and resources to empower them with comprehensive knowledge and skills in patient engagement, counselling techniques, and adherence support. This strategy focuses on improving their ability to address the diverse needs of HIV-positive individuals, ensuring they receive personalised and effective support from trained and capacitated providers. Case managers and adherence supporters should conduct regular assessments to identify the risk of lost to follow-up using standard risk identification tools.

A study conducted in adolescent HIV clinics in the United States of America on adolescent HIV healthcare providers' competencies showed the counsellor reinforces strengths and positive behaviour change with affirmations or affirming reassurances for patients (Kolmodin MacDonell, Pennar, King, Todd, Martinez & Naar 2019:3). This indicates that the capacity of a counsellor can positively affect patients and change their perspective on how it could help them return to care. A capacitated case manager has the potential to exert a positive influence on patients, particularly in terms of improving lost tracing and reducing rates of lost to follow-up.

A study conducted in the region of Quebec, Canada, on case management programmes for improving integrated care for frequent users of healthcare services showed that the

skills, leadership, and experience of the case manager seem to be the characteristics of the case management programme that have the most positive influence on patient experience of integrated care, self-management, and healthcare service use (Hudon, Chouinard, Bisson, Brousselle, Lambert, Danish, Rodriguez & Sabourin 2022:7).

7.8.4.1.2 Expected outcome

- Skilled case managers and adherence supporters who are equipped to offer tailored assistance result in increased patient retention, improved adherence to treatment regimens, and ultimately enhanced health outcomes among HIV-positive individuals.

7.8.4.1.3 Key activities to be done

- Conduct regular training programmes, including workshops and skill-building sessions, for case managers and adherence supporters;
- Emphasise the development of empathetic communication skills, cultural competence, and staying updated on the latest advancements in HIV care and treatment;
- Provide ongoing mentorship, resources, and continuous education to ensure the knowledge and skills of case managers and adherence supporters remain current and relevant; and
- Coaching case managers and adherence supporters through mentors, which will enable them to offer high-quality assistance to patients at all stages of their HIV care and treatment journey.

7.8.4.2 Key strategy 8: Central databases and digital systems development

7.8.4.2.1 Descriptions

Implementation of central databases and digital system identification will enhance the tracking and tracing of patients who were lost to follow-up, ensuring a more efficient process of tracing individuals at risk of losing their HIV care and treatment. This will also

prevent redundant testing and conserve valuable resources, both in terms of medication and human resources. Ethiopia currently lacks a centralised database for patients receiving ART, and there is no national unique identification system in place.

This situation leads to repeated testing and a higher likelihood of patients being lost to follow-up. In South Africa, TIER.net is an electronic patient management system that is used for monitoring and evaluation of HIV care and treatment programmes in government health facilities (South Africa 2020:2). The system was conceived as an integral component of a 3-tier strategy for the gradual implementation of a comprehensive electronic medical records (EMR) system. This approach offers a versatile solution, enabling healthcare facilities to progress towards EMR adoption incrementally, in alignment with the enhancement of their infrastructure and the availability of resources. TIER.net serves as the second tier, in which patients' paper clinical records are input into a non-networked computer at the health facility and subsequently transmitted at regular intervals to a central database (South Africa 2020:2).

A centralised digital database at the national level should be developed to prevent redundant testing and eliminate data duplication. A study conducted in Tanzania regarding the development of a financial incentive programme to enhance retention in HIV care and achieve viral suppression found that participants recognised the convenience of the fingerprint system, leading to simplified appointment processes and reduced clinic visit durations upon adopting the fingerprinting and mobile health (mHealth) systems (Packel, Fahey, Kalinjila, Mnyippembe, Njau & McCoy 2021:6).

7.8.4.2.2 Expected outcome

- Improved accuracy and speed of tracing lost patients that aims to minimise lost to follow-up rates, leading to higher retention in HIV care, better adherence to treatment, and improved overall health outcomes for patients.

7.8.4.2.3 Key activities to be done

- Create user-friendly central databases and digital identification systems tailored to the healthcare setting, ensuring compatibility with existing electronic health record systems with unique numbers at the national level;
- Integrate patient data from various sources into the central databases, allowing comprehensive tracking and monitoring of patients' progress;
- Provide training to healthcare staff on effectively utilising the digital systems, ensuring they can navigate the databases proficiently for accurate data entry and retrieval;
- Implement mechanisms for real-time updates of patient information, enabling timely intervention and follow-up by case managers and adherence supporters;
- Establish protocols for data accuracy and consistency, conducting regular audits to maintain the reliability of the information stored in the central databases;
- Collaborate with relevant partners, organisations, and IT experts to ensure the digital systems are secure, scalable, and capable of handling a large volume of patient data; and
- Regularly assess the effectiveness of the central databases and digital systems, gathering feedback from healthcare providers and patients to make necessary improvements and enhancements.

7.8.4.3 Key strategy 9: Financial and food assistance for patients

7.8.4.3.1 Descriptions

This strategy aims to incorporate a financial and food assistance programme into lost to follow-up tracing strategies to mitigate the socio-economic challenges experienced by patients, thereby fostering increased motivation for sustained engagement in HIV care and treatment. A study conducted in the United States of America among HIV-infected men who have sex with men indicated that patients needed help with housing, connections to mental health services, access to food resources, fitness programmes, and transportation services (Tolley, Hamilton, Eley, Maragh-Bass, Okumu, Balán, Gamble, Beyrer & Remien 2022:3120).

Specifically, providing transport coverage for healthcare facility visits during the first six months of initiating same-day ART could encourage patients to remain engaged in care until they fully understand the benefits of HIV treatment. Establishing food assistance programmes or feeding centres for patients experiencing food insecurity can enhance medication adherence, and collaborating with town health offices, regional health bureaus, and partners to address the monthly transportation challenges of patients unable to afford transport costs can serve as a motivating factor for individuals to stay engaged in HIV care. Similarly, financial incentives have a positive impact on HIV care retention and viral suppression.

A study conducted in Tanzania regarding the development of a financial incentive programme to enhance retention in HIV care and achieve viral suppression found that the introduction of financial incentives facilitated the shift from monthly prescription pick-ups to three-month prescription pick-ups, contributing to improved visit attendance, enhanced retention in care, and successful viral suppression (Packel et al 2021:8). Another systematic review conducted in East Africa on challenges and support for the quality of life of youths living with HIV in schools and larger communities highlighted financial stress and poverty as a challenge affecting people living with HIV and as one of the causes of non-adherence to treatment (Kimera, Vindevogel, De Maeyer, Reynaert, Engelen, Nuwaha, Rubaihayo & Bilsen 2019:11).

7.8.4.3.2 Expected outcome

- ❖ Reduced economic burden on patients and their families, reducing lost to follow-up that leads to improved patient retention in HIV care, better adherence to treatment, and an enhanced retention in care rate of 95%.

7.8.4.3.3 Key activities to be done

- Conduct an assessment to identify patients who require financial and food assistance based on socio-economic criteria;

- Secure funds and resources to support the financial and food assistance programme, which may involve partnerships with donors or local organisations;
- Tailor assistance packages to individual patient needs, considering factors like family size, income, and existing support systems;
- Develop efficient distribution channels for financial support, such as direct cash transfers or vouchers for essential items, and food support in the form of rations or meal vouchers;
- Establish a system to track the disbursement of assistance, ensuring it reaches the intended beneficiaries and is used for its intended purpose;
- Maintain records of the assistance provided and the impact it has on patient retention and adherence to treatment;
- Engage the local community, including community leaders, in the administration and oversight of the assistance programme to build trust and ensure transparency;
- Periodically review the financial and food assistance programme's effectiveness, adjusting as needed based on patient feedback and evolving socio-economic conditions;
- Offer financial literacy and budgeting workshops to help patients make the most of the assistance provided and gain long-term financial stability; and
- Develop a sustainability plan for the assistance programme, exploring options for ongoing funding and support to maintain its long-term impact.

7.8.4.4 Key strategy 10: Awareness campaigns for the community and patients

7.8.4.4.1 Descriptions

Conduct comprehensive awareness campaigns as part of strategies for lost to follow-up tracing, focusing on educating the community, patients, and healthcare providers about the importance of HIV care continuity and the risks of lost to follow-up. This can be achieved through various communication channels, with radio and television being notably prominent in the Ethiopian context, supported by evidence indicating that radio and health education in healthcare facilities are the prevailing methods for creating

awareness.

A study conducted in northern Uganda regarding HIV awareness campaigns, knowledge, and practices among pregnant women living with HIV revealed that participants reported various sources of information, with the most prevalent sources being radio broadcasts and health education sessions held at healthcare facilities (Odhiambo, Opii, Nakku, B, Aceng, Oola, Kobusinge, Rukundo & Auma 2023:4). Similarly, a study conducted in Uganda on the role of mass media campaigns in improving adherence to ART showed the majority of the respondents preferred broadcast media, which involved the use of television, radio, and public address drives, because of their easy accessibility (Akankunda et al 2022:403). This clearly demonstrates that national broadcast engagement plays a significant role in raising awareness within the community and among patients, resulting in a reduction of lost to follow-up and facilitating the tracing of those who have already disengaged from HIV care.

7.8.4.4.2 Expected outcome

- Enhanced awareness of the importance of consistent HIV care and the potential consequences of lost to follow-up leads to improved community engagement, higher rates of HIV care retention, and a reduction in patients lost to follow-up.

7.8.4.4.3 Key activities to be done

- Develop a detailed plan for the awareness campaign, outlining objectives, target audiences, messaging, and delivery methods;
- Create informative materials, including brochures, posters, pamphlets, and multimedia content, to convey key messages about the importance of HIV care continuity;
- Organise community meetings, workshops, and seminars to directly engage with community members and address their concerns and questions;
- Establish direct communication with patients who have defaulted on HIV care through phone calls, home visits, or text messages to educate them about the

benefits of returning to care;

- Conduct training sessions for healthcare providers to ensure they can effectively communicate the importance of retention in HIV care to their patients;
- Utilise social media platforms and online channels to reach a broader audience with educational content and messages;
- Collaborate with local organisations, community leaders, and influencers to amplify the campaign's reach and credibility;
- Organise awareness events, such as health camps, community walks, or public talks, to further educate and engage the community;
- Create a feedback system for patients and community members to provide input, share concerns, and suggest improvements to the campaign;
- Establish metrics and key performance indicators to assess the effectiveness of the awareness campaigns and make data-driven adjustments;
- Ensure that campaign messages and materials are culturally sensitive and respectful of local norms and values; and
- Develop a sustainability plan to maintain awareness efforts over the long term, keeping community engagement and education ongoing.

7.8.4.5 Key strategy 11: Capacity building for community and religious leaders

7.8.4.5.1 Descriptions

This strategy aims to provide capacity-building opportunities for community and religious leaders in lost to follow-up tracing within healthcare and social support systems. Lost to follow-up refers to individuals who have disengaged from necessary medical treatment or support services. ART community service provision through capacity building of community and religious leaders has a role in lost to follow-up tracing. Evidence showed that patients lost HIV care due to the teaching culture of religious leaders.

A study conducted in Kinshasa, Democratic Republic of the Congo, revealed that religious beliefs and the influence of certain pastors caused patients to refuse or delay seeking

appropriate medical care and to stop taking ART (Venables, Casteels, Manziasi Sumbi & Goemaere 2019:6). According to Venables et al (2019:6), patients interviewed reported that pastors tell them that they are cured and should stop their treatment immediately because of their beliefs. This highlighted the importance of capacity building for religious leaders, as it serves to benefit both patients and the community in the effective control of the HIV epidemic. When patients are lost from HIV care, it results in high viral loads, contributing to a higher transmission rate of HIV.

7.8.4.5.2 Expected outcome

- ❖ Capacity-built community and religious leaders with the knowledge and skills required to effectively trace and re-engage individuals who have become lost to follow-up in healthcare and social support programmes.

7.8.4.5.3 Key activities to be done

- Organise training workshops and seminars to educate community and religious leaders on the importance of lost to follow-up tracing and its impact on individuals and communities;
- Provide practical training to enhance leaders' skills in identifying, contacting, and re-engaging individuals who have disengaged from healthcare and social support services;
- Collaborate with community leaders to initiate awareness campaigns aimed at reducing the stigma associated with disengagement and encouraging those who have dropped out to return to needed services;
- Equip leaders with the necessary resources and tools, including databases and contact information, to facilitate the tracing process;
- Train leaders in proper data collection and management techniques to monitor and assess the effectiveness of their tracing efforts;
- Foster collaboration between community and religious leaders and healthcare providers to ensure a coordinated approach to lost to follow-up tracing; and
- Establish support systems to assist individuals returning to care, addressing

any barriers they may face, and ensuring continuity in their healthcare and social support services.

7.8.4.6 Key strategy 12: Creating an automated reminder system through SMS

7.8.4.6.1 Descriptions

This innovative system should be designed to address the challenges of patient retention in HIV care and treatment programmes by using mobile phone SMS messaging. It aims to reduce the rate of patients lost to follow-up by sending automated reminders and crucial information directly to their mobile devices.

This solution not only offers a convenient means of staying connected with patients but also ensures they receive timely notifications for appointments, medication adherence, and other essential aspects of their HIV care, ultimately improving treatment outcomes and reducing the burden on healthcare providers. In a systematic review conducted on the effectiveness of mobile text reminders in improving adherence to medication, physical exercise, and quality of life in patients living with HIV across different studies, the following prescriptions of mobile text reminders were associated with positive outcomes for medication adherence (Ibeneme, Ndukwu, Myezwa, Irem, Ezenwankwo, Ajidahun, Ezuma, Nnamani, Onodugo, Fortwengel & Uwakwe 2021:14).

The automated reminding system through SMS combines the power of technology with the imperative need for consistent and supportive patient engagement in HIV healthcare, offering a practical and scalable solution to enhance patient retention and overall health. Another systematic study was conducted on the effect of patient reminders on reducing missed appointments in medical settings that 95% of studies showed a positive effect of patient reminders on appointment rates, with an average of 41% reduction in missed appointment rates and 34% increase in clinic attendance rates in all the studies (Opon, Tenambergen & Njoroge 2020:5).

7.8.4.6.2 Expected outcome

- ❖ Improved patient retention rate of 95% and better treatment adherence in HIV care and treatment programmes through the implementation of the automated SMS reminding system.

7.8.4.6.3 Key activities to be done

- Design and develop the automated SMS reminding system, including user-friendly interfaces for healthcare providers and tailored patient messaging;
- Integrate the system with patient databases to access appointment schedules and treatment plans, ensuring the accuracy and relevance of reminders;
- Enrol patients in the SMS reminder system, obtaining their consent and contact details, and providing clear information on its benefits and usage;
- Tailor messages to include appointment dates, medication schedules, clinic information, and motivational content, ensuring patient engagement;
- Implement automated reminder messages for upcoming appointments, medication refills, and important healthcare instructions, maintaining consistent communication;
- Establish a mechanism for patients to confirm or reschedule appointments and seek assistance or information through SMS;
- Continuously assess the system's effectiveness in improving patient retention and treatment adherence, adjusting as needed;
- Educate healthcare staff on system usage and the importance of proactive patient engagement, ensuring seamless integration into clinical workflows;
- Empower patients with knowledge about the SMS system, its benefits, and how to effectively utilise it for their care;
- Implement robust data protection measures to safeguard patient information and ensure compliance with privacy regulations;
- Solicit feedback from patients and healthcare providers to make improvements and address any challenges or concerns; and
- Plan for the scalability and long-term sustainability of the system, considering

expansion to more healthcare facilities and ongoing system maintenance.

7.8.5 Preliminary strategies for viral monitoring mechanisms

According to the Ministry of Health Ethiopia (2018:173), viral load suppression was defined as the percentage of patients on ART with a suppressed viral load <1000 copies/ml in the past 12 months. Effective viral suppression monitoring mechanisms are crucial to the success of HIV care programmes, ensuring that patients achieve and maintain viral load suppression. An undetectable viral load is the ultimate goal of antiretroviral therapy for all people living with HIV, both for their own health and to prevent onward transmission to their sexual partner(s) and children (World Health Organization 2023:9).

Four key preliminary strategies have been identified to optimise these mechanisms: assigning a focal person for laboratory oversight, comprehensive documentation of patient information, regular capacity building for healthcare providers, improved counselling strategies, and a clear description of healthcare provider responsibilities. This combination of strategies is designed to enhance the overall quality of care, promote adherence, and ultimately contribute to better health outcomes for HIV-positive individuals. The preliminary strategies for viral suppression monitoring mechanisms were developed and operationalised by providing a rationale for their validation and supporting them with literature. They are discussed as follows:

7.8.5.1 Key strategy 13: Assigning focal person for viral load laboratory person

7.8.5.1.1 Descriptions

Assigning a focal person for laboratory oversight involves designating a knowledgeable and responsible individual within the healthcare facility to manage all aspects related to viral load monitoring. This includes coordinating sample collection, ensuring timely processing of laboratory tests, and accurately recording and reporting the results. Assigning a responsible individual who can monitor and sort high viral load results, document them, and alert clinicians for immediate action has been proven to improve viral

test utilisation in multiple settings (African Society for Laboratory Medicine 2019:6).

Evidence in Kenya demonstrated that addressing the challenges related to viral load testing and monitoring involved the implementation of a dedicated VL focal person to daily monitor and track VL results, along with the assignment of case managers to clients with unsuppressed VL (Pearson, Jennifer & Sabrina Eagan 2019:41). When implementing this strategy, it's essential to carefully choose a qualified and dedicated staff member who possesses the required knowledge and skills to assume the role of the focal person for laboratory oversight in monitoring viral suppression at the healthcare facility level. Additionally, it's crucial to establish a system for ongoing performance monitoring and evaluation.

7.8.5.1.2 Expected outcome

- Timely monitoring of viral suppression and result delivery to patients is necessary in order to minimise delays, reduce the risk of errors, and enhance the overall reliability of viral suppression data.

7.8.5.1.3 Key activities to be done

- Select a qualified and committed staff member with the necessary knowledge and skills for the role of the focal person for viral load laboratory oversight;
- Offer specialised training and access to relevant resources to ensure that the focal person can effectively manage the laboratory processes;
- Oversee the coordination of tasks related to sample collection, laboratory testing, and timely reporting of results under the focal person's supervision;
- Establish a system for regular performance monitoring and evaluation of the designated focal person to maintain high-quality and efficient viral load monitoring mechanisms; and
- Monitoring timely result delivery to patients and viral load result utilisation for decision-making.

7.8.5.2 Key strategy 14: Enhancing ART clinic healthcare provider's regular capacity building

7.8.5.2.1 Descriptions

Regular capacity building is the process of enhancing the knowledge, skills, and competencies of healthcare providers involved in viral monitoring mechanisms, ensuring they stay updated with the latest developments and best practices in HIV care and viral suppression monitoring. Employing diverse platform-based capacity-building strategies for healthcare providers plays a crucial role in enhancing the quality of services.

A study conducted in Vietnam on building HIV healthcare worker capacity through telehealth revealed that participating healthcare providers reported high satisfaction with the programme, with more than 85% of respondents agreeing that access to the training had improved the quality of care they provided to their patients (Pollack, Nhung, Vinh, Hao, Duc, Van Kinh, Dung, Dung, Ninh, Huyen & Huy 2020:4). The Federal Democratic Republic of Ethiopia Ministry of Health's National HIV Service Quality Improvement clearly indicated that training for health workers to improve their knowledge and skills and support healthcare facilities in quality improvement (Federal Ministry of Health Ethiopia 2018:22)

7.8.5.2.2 Expected outcome

- Built capacity of a healthcare team that is well-informed, competent, and capable of effectively implementing viral monitoring mechanisms, resulting in improved patient care, timely interventions, and better clinical outcomes.

7.8.5.2.3 Key activities to be done

- Identify training needs and gaps in knowledge and skills among healthcare providers responsible for viral monitoring;
- Developing a comprehensive training programme that covers the latest

advancements in HIV care, viral load monitoring, laboratory techniques, and data management;

- Organising regular training sessions, workshops, and seminars, and encouraging healthcare providers to attend relevant conferences and webinars;
- Providing access to up-to-date resources, guidelines, and research materials to keep healthcare providers informed;
- Creating a mentoring system which would assist experienced healthcare providers with guidance and support their peers;
- Evaluating the impact of capacity-building activities through assessments, feedback, and the application of newly acquired knowledge in practice; and
- Encouraging healthcare providers to share their experiences and insights with the team to foster continuous learning and improvement.

7.8.5.3 Key strategy 15: Improving healthcare providers counselling on viral load performance

7.8.5.3.1 Descriptions

Improved counselling on viral load involves enhancing the quality and comprehensiveness of patient education and support related to viral load testing, its significance, and the implications for HIV care and treatment. People living with HIV should be provided information about what viral load results mean, receive encouraging adherence counselling messages, and feel empowered to control and manage their own health (World Health Organization 2023:4). The extent of patients' awareness regarding viral load has a distinct influence on the effectiveness of timely viral load testing and the monitoring of viral load suppression.

A study conducted at Columbia University Irving Medical Centre on the accuracy of self-reports of HIV viral load status and risk factors for inaccurate reporting of viral suppression among racial/ethnic minority persons living with HIV showed that there is a gap in knowledge of current VL status among racial/ethnic minority PLWH, particularly among sexual minority individuals, to potentially prevent HIV transmission (Yoo-Jeong & Schnall

2020:371).

Similarly, a study conducted in South Africa on delays in repeat HIV viral load testing for those with elevated viral loads found that only about half of patients with a high viral load met the national guidelines, emphasising the need for renewed efforts to ensure timely testing (Fox, Brennan, Nattey, MacLeod, Harlow, Mlisana, Maskew, Carmona & Bor 2020:5). This showed that there are gaps in knowledge from healthcare providers and patients' perspectives in regular viral suppression monitoring. Additionally, the study findings and evidence indicate that patients' lack of awareness regarding viral load adversely impacts viral load testing and suppression, primarily due to inadequate counselling by healthcare providers. A study conducted in high HIV burden districts in Zimbabwe on the potential of promoting viral load literacy to support adherence and viral suppression among adolescents living showed most participants had only a limited understanding of what their VL results meant (Bernays, Lariat, Cowan, Senzanje, Willis & Nenguke 2023:3).

7.8.5.3.2 Expected outcome

- ❖ Patients with a better understanding of their viral load results, their role in managing their health, and to promote adherence to treatment, resulting in optimised viral suppression.

7.8.5.3.3 Key activities to be done

- Develop updated and patient-friendly educational materials explaining the concept of viral load and its relevance to HIV care;
- Train healthcare providers, including counsellors and case managers, to deliver clear and empathetic counselling on viral load;
- Tailor counselling sessions to individual patient needs and comprehension levels;
- Address patient concerns, questions, and misconceptions about viral load in a supportive and informative manner;
- Ensure counselling includes the benefits of adhering to treatment, the connection

between viral load and disease progression, and the potential impact on viral transmission;

- Create a feedback mechanism to assess the effectiveness of counselling sessions and continuously improve the process; and
- Encourage open communication between patients and healthcare providers to foster trust and adherence to recommendations for viral load management.

7.8.5.4 Key strategy 16: Enhancing ART clinic healthcare provider responsibilities in HIV service provision

7.8.5.4.1 Descriptions

ART clinic healthcare provider responsibilities in the context of viral monitoring mechanisms encompass the specific roles and tasks that healthcare professionals must undertake to ensure accurate, timely, and effective monitoring of patients' viral loads as part of HIV care and treatment. In the care provision, all healthcare providers working in teams have good clinical and service provision. According to the United States of America's Department of Health and Human Services (2018:6), the characteristics of the clinical setting can also have important structural influences on the success or failure of medication.

Further, the US Department of Health and Human Services (2018:6), explained that multidisciplinary care (case managers, laboratories, pharmacists, social workers, mental health, and substance use providers) can support patients' complex needs, including their medication adherence-related needs. Healthcare providers must demonstrate accountability and responsibility in helping patients understand viral load testing and interpret the results effectively. The study findings and evidence revealed that patients lack awareness of the blood they give for viral load testing. Patients and carers indicated some pervasive distrust and fear towards VL testing due to phlebotomy or blood draws and the negative aspects of three-month VL testing. One mother responded, "It drains blood from the body," and a nursing offer corroborated this sentiment that patients often say, "They are drawing blood; you'll be anaemic (Qian, Hassan, Scallon, Oyaro, Brown,

Wagude, Mukui, Kinywa, Oluoch, Odhiambo & Oyaro 2022:10).

7.8.5.4.2 Expected outcome

- ❖ Clearly defined healthcare provider roles and responsibilities of healthcare professionals involved in viral load monitoring result in improved patient care, timely interventions, and enhanced viral suppression rates of 95%.

7.8.5.4.3 Key activities to be done

- Develop a comprehensive set of protocols that outline the specific responsibilities of healthcare providers at different levels of the healthcare system, including HIV-related viral load monitoring-specific activities;
- Define the role of each healthcare provider, including physicians, nurses, laboratory staff, and counsellors, in the process of viral load monitoring;
- Ensure healthcare providers are aware of their responsibilities and have access to the necessary training and resources to fulfil their roles effectively;
- Promote effective communication and coordination among healthcare providers to facilitate the smooth flow of information and patient care;
- Implement regular training and capacity-building programmes to keep healthcare providers updated on the latest advancements and best practices in viral load monitoring;
- Encourage healthcare providers to engage in continuous quality improvement activities to enhance the efficiency and effectiveness of viral load monitoring mechanisms; and
- Monitor the adherence of healthcare providers to their defined responsibilities and provide feedback and support for improvement.

After operationalisation and discussion based on the literature of preliminary proposed strategies, they were amended and adopted as interim strategies, which were also operationalised and sent to health experts working in the HIV/AIDS programme at the federal Ministry of Health and regional health bureaus for review and validation. Interim

strategies that were identified were operationalised based on information from preliminary strategies. They were the following:

7.9 INTERIM STRATEGIES

To enhance HIV prevention, care, and treatment, the development of effective strategies is pivotal. This set of interim strategies focused on crucial aspects: same-day ART initiation, lost to follow-up tracing, and the intricate mechanisms for viral suppression monitoring. The researcher developed 16 interim strategies and their operationalisation are presented in Table 7.4 below.

Table 7.4: Interim strategies and their operationalisation

Strategies	Operationalisation
Strategy 1: Patient knowledge and counselling	Conduct regular sessions to educate patients about same-day ART, providing comprehensive information on its benefits, potential side effects, adherence, and the importance of consistent treatment.
Strategy 2: Patient readiness for same-day ART initiation	Implement a pre-assessment process to evaluate patient readiness, including mental and emotional preparation, ensuring they understand the same-day ART initiation process and are willing and able to start treatment on the same-day of diagnosis.
Strategy 3: Enhanced information and education provision	Develop easily understandable educational materials and disseminate information through various channels (leaflets, posters, and digital platforms) to ensure patients have access to accurate and comprehensive information about same-day ART initiation and its management.
Strategy 4: In-depth counselling for patients	Offer individualised counselling sessions, providing a deeper understanding of the treatment process, addressing concerns, and ensuring patients are emotionally supported and committed to same-day ART treatment adherence.
Strategy 5: Monitoring and evaluation of performance	Implement routine assessments to monitor the effectiveness of same-day ART initiation, evaluating patient progress, adherence rates, and the overall impact of interventions, and use this data to make informed improvements.
Strategy 6: Reduction of lost to follow-up	Develop and implement systems to promptly identify patients prior to being lost and reconnect with patients who miss appointments, ensuring continuous engagement in care and reducing the rate of lost follow-ups.

Strategy 7: Enhance the capacity of case managers and adherence supporters	Provide comprehensive training and continuous professional development for case managers and adherence supporters, equipping them with the skills to effectively assist patients in their treatment journey.
Strategy 8: Central databases and digital systems development	Establish centralised databases and digital systems to streamline patient data management, facilitating efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.
Strategy 9: Financial and food assistance for patients	Provide financial support and access to nutritional assistance programmes to alleviate socioeconomic barriers, ensuring patients have the means to afford treatment and maintain good health through proper nutrition in collaboration with partners.
Strategy 10: Awareness campaigns for the community and patients	Organise community-wide awareness campaigns through various media channels (TV, radio, community events) to reduce stigma, increase awareness about HIV, and encourage testing and treatment in sustainable ways.
Strategy 11: Capacity building for community and religious leaders	Conduct workshops or training for community and religious leaders, fostering partnerships to spread awareness and reduce stigma, while also providing ongoing support and resources for these leaders.
Strategy 12: Creating automated reminding system through SMS	Implement, test and refine an SMS reminder system linked to appointment schedules while educating both staff and patients on its utilisation and effective response for alerting systems in collaboration with Ethiotelecom.
Strategy 13: Assigning focal person for viral load laboratory person	Design a specific individual accountable for viral load management, offering comprehensive training and resources, and ensuring continuous coordination between ART clinics and laboratories for effective execution and results utilisation.
Strategy 14: Enhancing ART clinic healthcare provider's regular capacity building.	Establish regular training sessions for healthcare providers, integrating new research and guidelines into these programmes, and assessing the influence of capacity-building efforts on enhancing patient care for sustainable quality service provision.
Strategy 15: Improving healthcare providers counselling on viral load performance	Provide specialised training in viral load counselling, creating tailored scripts or guidelines for viral load discussions, and monitoring provider-patient interactions to ensure enhanced counselling outcomes for patients understanding of viral load benefit.
Strategy 16: Enhancing ART clinic healthcare provider responsibilities in HIV service provision	Establish and document clear, evolving responsibilities for each healthcare provider, regularly reviewing and updating these duties based on changing needs, and fostering clarity and accountability among the healthcare staff regarding their roles specific to HIV care and treatment.

7.10 VALIDATION OF THE STRATEGIES

Validation is defined as a process that draws on the traditional methods of science to substantiate the accuracy of conceptual meanings in terms of empiric evidence, interacts with replication to challenge and authenticate empiric knowledge, and may also refer to newer methods for establishing the credibility or truth value of knowledge structures within the empiric pattern (Chinn et al 2021:267). The draft developed strategies were approved by the supervisor prior to validation by health experts working in HIV programmes at the Federal Ministry of Health and regional health bureaus. The researcher used the Modified Delphi technique for the strategies validation process. Since it was designed, the Modified Delphi technique has become a widely used tool for measuring and aiding forecasting, planning, and decision-making tool in a variety of disciplines (Dimitrijević, Simic, Radonjic & Kostic-Ljubisavljevic 2012:401). The researcher applied two rounds of the Modified Delphi technique for strategies validation, and health experts reached consensus on the strategies validation in round two. The details of the methodology for strategies validation are presented below.

7.10.1 Methodology of strategies validation

In the strategies validation process, the researcher employed a descriptive methodological approach to evaluate the developed strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms within the HIV care and treatment programme. For the strategies validation, the researcher used healthcare experts working in the field of HIV at the Federal Ministry of Health and regional health bureaus. The details of the setting, population, sample size, inclusion criteria, participant's recruitment, and data collection for validation are presented below.

7.10.1.1 Setting

The researcher did not have a specific setting in that regard. The setting was where the different healthcare experts were working on the HIV/AIDS programme at the Federal Ministry of Health (MoH), the Oromia Regional Health Bureau (ORHB), the Harari

Regional Health Bureau (HRHB), and the Sidama Regional Health Bureau (SRHB).

7.10.1.2 Population

Healthcare experts holding a Master's degree in health, being Masters of Public Health (MPH), Master of Science (MSc) in Nursing, Epidemiology, Health Monitoring and Evaluation (MSc in M&E), Medical Doctorate (MD), or a Doctor of Philosophy (PhD) in Public Health, Nursing, or Epidemiology, with at least five years' experience in HIV programmes, were targeted as the population for strategy validation.

7.10.1.3 Sampling and sample size

A purposive sampling method was employed to select ten (10) healthcare experts from the Federal Ministry of Health and the regional health bureaus. The sample consisted of individuals with specialised education and knowledge in HIV prevention, care, and treatment programmes.

7.10.1.4 Inclusion criteria

- Healthcare experts hold a Master's of MPH, MSc in Nursing, Epidemiology, MSc in Monitoring and Evaluation (MSc in M&E), Medical Doctorate (MD), or a PhD in Public Health, Nursing, or Epidemiology;
- Currently working in the HIV programme at the Federal Ministry of Health (MoH), the Oromia Regional Health Bureau (ORHB), the Harari Regional Health Bureau (HRHB), and the Sidama Regional Health Bureau (SRHB) (expert in the HIV/AIDS programme); and
- A minimum of five years of work experience in HIV programmes.

7.10.2 Round one strategies validation

7.10.2.1 Round one strategies validation criteria

The purpose of strategies validation was to confirm that the developed strategies were feasible, acceptable, and sustainable to enhance HIV prevention, care, and treatment. Clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability were among the validation criteria that were used to determine whether strategies had been validated for round one validation (Jira 2022:206). An evaluation tool (refer to Annexure 50 for round one strategies evaluation tool) was developed by the researcher for the purpose of strategies validation in round one. It was comprised of Section A, socio-demographic questions. The socio-demographic details assisted the researcher in ensuring that the inclusion criteria were addressed and in learning more about the participants. Section B is comprised of validation criteria and a description.

The validation criteria were similar to those in Table 7.5 below. Furthermore, the tool comprised Section C, which consisted of a Likert scale to express their varying levels of agreement, ranging from strongly disagree (1), disagree (2), agree (3), and strongly agree (4) for each validation parameter. The participants were requested to score each interim strategy on the indicated 4-point Likert scale. According to Frey (2018:481), the Delphi technique can include qualitative (open-ended questions) and quantitative components (Likert-type survey items). There was a comment column for each interim strategy and a general comment, which were to be addressed by the participants based on their suggestions.

Table 7.5: Criteria for round one validation of strategies

S.N	Validation criteria	Description
1	Clarity	The strategy is easy and simple to understand.
2	Acceptability	The strategy will be practical and acceptable by ART programs and stakeholders.
3	Applicability	The scope and users of the strategy are clearly defined.
4	Relevance	The strategy is appropriate to enhance HIV prevention, care and treatment services.

5	Effectiveness	The strategy can support the countries to achieve 2030 target.
6	Feasibility	The practicality or possibility to be implemented within a given set of circumstances.
7	Sustainability	The capacity of a strategy to be maintained over time, considering its long-term impact on HIV care and treatment.
8	Achievability	The feasibility of successfully implementing and attaining the desired goals in HIV care and treatment.

7.10.2.2 Round one strategies validation participant recruitment

Healthcare experts for the strategies validation were purposefully selected from the Federal Ministry of Health (MoH), the Oromia Regional Health Bureau (ORHB), the Harari Regional Health Bureau (HRHB), and the Sidama Regional Health Bureau (SRHB), who were working in the HIV/AIDS programmes. These experts hold a Master's of Public Health, MSc in Nursing, MPH in Epidemiology, MSc in Health Monitoring and Evaluation (M&E), a Medical Doctorate (MD), or a PhD in Public Health, Nursing, or Epidemiology with five years and above of work experience in the HIV programme (refer to Table 7.6).

Prior to inviting experts to validate the strategies, the researcher recruited them from the 29th of November 2023 until the 4th of December 2023 by communicating with each healthcare expert in the Ministry of Health face-to-face and via cell phone for those in different regional health bureaus. In the recruitment process, COVID-19 guidelines were adhered to, in which social distancing was maintained and sanitizer was used. During these conversations, the researcher explained the study's purpose, the validation process for strategies, and requested their voluntary participation. Their email addresses were requested for further communication and were given to the researcher. Those who expressed their willingness to participate in the validation of the strategies and an invitation letter for strategies validation were sent by the researcher via email from the 30th of November 2023 until the 4th of December 2023 (refer to Annexure 41 for startegies validation participant profiles).

Furthermore, in the email, the researcher also attached an information sheet (refer to Annexure 47 for information sheet for participants for strategies validation) the University of South Africa Research and Ethics Committee (refer to Annexure 1 for the UNISA ethical

clearance certificate) and approval to conduct a study received from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo) and an informed consent form (refer to Annexure 48 for an informed consent form for participants for strategies validation) requesting that they sign if they agree to validate the strategies and return them back to the researcher via email. After receiving signed informed consents and information sheets from each healthcare expert via email, the researcher proceeded with the round one strategies validation data collection. Details about data collection in round one strategies validation are presented below.

7.10.2.3 Data collection for round one strategies validation

In round one strategies validation data was collected from each health expert after signed informed consent forms (refer to Annexure 48 for and informed consent form for participants for strategies validation) were received via email. The researcher emailed round one interim strategies evaluation tool, which was utilised as the data collection tool for strategies validation in this round (refer to Annexure 50 for round one strategies evaluation tool) from the 29th of November 2023 until the 4th of December 2023. Furthermore, with the email communication, the researcher also attached the operationalised interim strategies for validation (refer to Annexure 52 for an operationalised interim strategies for round one validation), which supported the participants in completing the evaluation tool.

Data collection for strategies validation was conducted from the 5th of December 2023 until the 9th of December 2023. In round one of strategies validation, data was collected from a total of ten (10) health experts, comprising five (5) from MoH, two (2) from ORHB, two (2) from SRHB, and one (1) from HRHB. Table 7.6 displays the participants selected for strategies validation. The researcher operationalised the headings of the tables as follows:

- Qualification: Masters of Public Health, MSc in Nursing, MPH in Epidemiology, MSc in Health M and E, a Medical Doctorate (MD), or a PhD in Public Health, Nursing, or Epidemiology;

- Position: Expert in the HIV/AIDS programme;
- Organisation: working at the Federal Ministry of Health (MoH), the Oromia Regional Health Bureau (ORHB), the Harari Regional Health Bureau (HRHB), and the Sidama Regional Health Bureau (SRHB); and
- Work experiences: five years and above in the HIV programme.

Table 7.6: Health experts' profile for strategies validation

S.No	Code	Age	Gender	Organisation	Position	Qualification	Year of experience
1	HE1	30-39	M	MoH	Care and Treatment Advisor	MPH	10
2	HE2	30-39	M	ORHB	Monitoring and Evaluation officer on HIV/AIDS	MPH	10
3	HE3	30-39	M	MoH	HIV/AIDS program M and E Officer	MPH	13
4	HE4	30-39	M	MoH	HIV Program coordinator	MPH	10
5	HE5	30-39	F	MoH	Monitoring and Evaluation Advisor	MPH	11
6	HE6	30-39	M	Sidama RHB	HIV/AIDS Prevention, Care and Treatment Officer	MPH	10
7	HE7	30-39	F	HRHB	Regional HIV health information system and Digital health specialist	MSc in Health M and E	7
8	HE8	30-39	M	Sidama RHB	Regional Coordinator of HIV-Case Surveillance	PhD in Public Health	5
9	HE9	30-39	M	MoH	HIV Advisor	MD +MPH	10
10	HE10	30-39	M	ORHB	HIV/AIDS Care and Treatment Advisor	MD	6

All the ten recruited participants participated in validation of strategies for round one.

7.10.2.4 Presentation and description of round one validation results

In round one strategies validation, the scores given by healthcare experts were analysed

using an Excel sheet, and the comments given were summarised under each strategy. As indicated in Table 7.6, health expert profile information was analysed as follows, which was collected as a part of data collection using strategies validation evaluation tool. The experts were identified as coded, HE is being a health expert, followed by a numeric in the description of the analysis, for example, HE1. All participants (n=10) fell within the age range of 30-39 years. Female participants comprised of 20% (n=2), while male participants constituted 80% (n=8) of those recruited for the strategies validation. In terms of organisational representation, 50% (n=5) of participants belonged to the Federal Ministry of Health (MoH), 20% (n=2) each from the Oromia Regional Health Bureau (ORHB) and Sidama Regional Health Bureau (SRHB), and the remaining 10% (n=1) from the Harari Regional Health Bureaus (HRHB). Regarding the health expert position with the organisation they are working for, the majority, 50% (n=5) were HIV care and treatment advisors; 30% (n=3) served as HIV monitoring, evaluation, and information management officers; and a minority, 20% (n=2) were HIV-case surveillance and programme coordinators. From the perspective of qualification, the majority, 60% (n=6) have MPH, 10% (n=1) have MSc in Health M and E, 10% (n=1) have MD and MPH,10% (n=1) has MD and 10% (n=1) have PhD in Public Health (refer to Table 7.6).

In this round strategies validation, strategies with an average score of 30 (75%) or higher from the total of 40 points were considered for further validation in round two. The 16 strategies evaluated in this round on average scored 31 (78%) to 39 (97%). These results indicated that all the strategies evaluated in this round passed validation. The summary of strategies validation results in round one validation is presented below in Table 7.7. Specific validation results for each participant in this round were attached at the end of the thesis (refer to Annexure 53 for round one interim strategies validation and each expert evaluation results).

Table 7.7: Summary of round one strategies validation results

S.N	Interim strategies	Validation criteria for each strategy strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total score (n)	Average score	%
Strategies for same-day ART initiation												
1	**Strategy 1:** Patient knowledge and counselling	38	38	37	39	37	36	36	37	298	37.3	93
2	**Strategy 2:** Patient readiness for same-day ART initiation	38	37	36	39	38	36	35	35	294	36.8	92
3	**Strategy 3:** Enhanced information and education provision	37	37	36	39	36	36	36	37	294	36.8	92
4	**Strategy 4**: In-depth counselling for patients	37	36	36	39	37	35	37	36	293	36.6	92
5	**Strategy 5:** Monitoring and evaluation of performance	37	37	39	39	39	39	39	37	306	38.3	96
6	**Strategy 6:** Reduction of lost to follow-up	37	37	36	37	38	37	35	36	293	36.6	92
Strategies for lost to follow-up tracing												
7	**Strategy 7:** Enhance the capacity of case managers and adherence supporters	37	38	37	38	36	36	36	36	294	36.8	92
8	**Strategy 8:** Central databases and digital systems development	38	38	36	38	38	33	36	34	291	36.4	91
9	**Strategy 9:** Financial and food assistance for patients	35	35	32	36	31	25	27	30	251	31.4	78
10	**Strategy 10:** Awareness campaigns for the community and patients	38	38	36	37	37	37	37	36	296	37.0	93
11	**Strategy 11:** Capacity building for community and religious leaders	37	37	37	36	36	34	33	35	285	35.6	89
12	**Strategy 12:** Creating automated reminding system through SMS	39	37	34	39	38	33	31	34	285	35.6	89
Strategies for viral suppression monitoring mechanisms												
13	**Strategy 13:** Assigning focal person for viral load laboratory person	38	39	39	39	39	38	39	39	310	38.8	97

14	**Strategy 14:** Enhancing ART clinic healthcare provider's regular capacity building	37	37	37	37	35	34	37	36	290	36.3	91
15	**Strategy 15:** Improving healthcare providers counselling on viral load performance	38	39	37	39	39	38	37	38	305	38.1	95
16	**Strategy 16:** Enhancing ART clinic healthcare provider responsibilities in HIV service provision	39	38	37	39	39	38	37	39	306	38.3	96

The comments given in round one evaluation by health experts were summarised under each strategy as follows:

Health experts assigned scores based on eight criteria in all the strategies as indicated in Table 7.7 are clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability. Each validation criteria was scored on 4 points, and when multiplied by 10 health experts (4x10) who participated in the strategies validation, the score led to a total of 40 points.

Strategy 1: Patient knowledge and counselling

Table 7.7 above indicates that the evaluation of strategies related to patient knowledge and counselling involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 38, applicability 37, relevance 39, effectiveness 37, feasibility 36, sustainability 36, and achievability 36, resulted in an average score of 37.3. The overall score for patient knowledge and counselling strategy was 93% (n=298). In their comments, the experts emphasised the significance of patient knowledge and counselling in achieving the 2030 goal related to HIV prevention, care, and treatment. It highlighted that counselling, especially for ART initiation, requires ample time, particularly in high-volume sites. Strengthening differentiated service delivery (DSD) is essential to allocating adequate counselling time for ART patients. Participants commented that the strategy's effectiveness is heavily reliant on the skill and proficiency of counsellors, underscoring the importance of their expertise in ensuring the quality of counselling, particularly in high-load facilities.

Three (3) health experts commented as follows:

HE6: *In order to meet the goal set by 2030, patient knowledge and counselling are effective if it is knowledge related to HIV prevention, care and treatment*.

HE7: *Most of the patients hesitate to start ART on some days and it also needs adequate time for counselling, especially in high-load sites. To provide adequate counselling time for ART patients, DSD must be strengthened; otherwise, the quality of counselling at high load facilities will be in question.*

HE10: *The strategy is very important, but its efficiency depends on counsellor skill.*

Strategy 2: Patient readiness for same-day ART initiation

Table 7.7 above indicates that the evaluation of strategies related to patient readiness for same-day ART initiation involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 37, applicability 36, relevance 39, effectiveness 38, feasibility 36, sustainability 35, and achievability 35, resulted in an average score of 36.8. The overall score for patient readiness for the same-day ART initiation strategy was 92% (n=294). In their comments, the experts raised challenges in the same-day ART initiation strategy, stating gaps in pre-assessment due to health worker workload in certain healthcare settings. Rapid ART initiation can leave patients inadequately prepared psychologically, clinically, and physically for ART. The availability of desktop references and checklists facilitates the assessment of patient readiness for same-day initiation. However, there are instances where patients decline same-day initiation due to various reasons, pointing to the complexity of patient decision-making in this context.

Four (4) health experts commented as follows:

HE2: *There are some gaps in the pre assessment of all patients because of the work overload of health workers at some health care services*.

HE6: *The patient's redness requires time gaps, prompt patient drug initiation makes patients insufficient in psychological, clinical, and physical preparation, making ART initiation impractical*.

HE7: *If desktop references and a checklist are available, it is easy to assess patient*

redness for same-day ART initiation.

HE10: *There are some patients who decline same-day ART initiation for many reasons.*

Strategy 3: Enhanced information and education provision

Table 7.7 above indicated that the evaluation of strategies related to enhanced information and education provision involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 37, applicability 36, relevance 39, effectiveness 36, feasibility 36, sustainability 36, and achievability 37, resulted in an average score of 36.8. The overall score for enhanced information and education strategy was 92% (n=294). In their comments, the experts suggested that the current enhanced information and education provision strategy might lack sustainability. They highlighted concerns about this strategy's feasibility and the potential impact of clients searching for information themselves. Participants emphasise the importance of enhancing information and education within healthcare facilities at all service delivery points, suggesting integration with strategy one. Furthermore, it indicates the possible need for additional human resources to effectively implement this strategy.

Five (5) health experts commented as follows:

HE2: *It is not sustainable accordingly.*

HE4: *Its feasibility and searching for information by clients can affect it.*

HE7: *Enhancing information and education for patients in side health facilities at all service delivery points is also crucial.*

HE9: *This can be merged with strategy 1.*

HE10*: Additional resources (HR) may be required.*

Strategy 4: In-depth counselling for patients

Table 7.7 above indicates that the evaluation of strategies related to in-depth counselling for patients involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 36, applicability 36, relevance 39, effectiveness

37, feasibility 35, sustainability 37, and achievability 36 resulted in an average score of 36.6. The overall score for in-depth counselling for the patient's strategy was 92% (n=293). In their comments, the experts commented on similarities between the in-depth counselling strategy and strategy one and suggested merging this strategy with strategy one. They also acknowledged the positive impact of in-depth counselling on quality improvement but pointed out challenges faced by ART nurses in providing such counselling due to client flow and staff shortages.

Three (3) health experts commented as follows:

> **HE4**: It *seems similar to strategy one*.
>
> **HE7**: *In-depth counselling for patients is good for quality improvement; however, due to client flow and a shortage of staff, ART nurse are not providing in-depth counselling*.
>
> **HE9:** *This can be merged with strategy 1*.

Strategy 5: Monitoring and evaluation of performance

Table 7.7 above indicates that the evaluation of strategies related to monitoring and evaluation of performance involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 37, applicability 39, relevance 39, effectiveness 39, feasibility 39, sustainability 39, and achievability 37, resulted in an average score of 38.3. The overall score for monitoring and evaluation of performance strategy was 96% (n=306). One health expert suggested the importance of considering strategies beyond rapid ART initiation initiatives that tackle broader health system challenges associated with rapid ART initiations.

One (1) health expert commented as follows:

> **HE9:** *It is good to consider strategies that address other health system related challenges of rapid ART initiations*.

Strategy 6: Reduction of lost to follow-up

Table 7.7 above indicated that the evaluation of strategies related to the reduction of lost to follow-up involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 37, applicability 36, relevance 37, effectiveness 38, feasibility 37, sustainability 35, and achievability 36 resulted in an average score of 36.6. The overall score for reducing lost to follow-up strategy was 92% (n=293). In their comments, the experts raised uncertainty regarding the effectiveness of reducing lost follow-up when initiating same-day ART. It questions whether a lack of time or preparation before starting long-term medication might contribute to this issue. Emphasis was placed on the importance of high-quality counselling in this context, suggesting that the quality of counselling could play a crucial role in reducing the lost to follow-up rates.

Two (2) health experts commented as follows:

> **HE6**: *It's unclear if there is a reduction in lost follow-up when same-day ART is started because clients need time or preparation before starting long term medication*.
>
> **HE10**: *The quality of counselling is very important.*

Strategy 7: Enhance the capacity of case managers and adherence supporters

Table 7.7 above indicated that the evaluation of strategies related to enhancing the capacity of case managers and adherence supporters involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 38, applicability 37, relevance 38, effectiveness 36, feasibility 36, sustainability 36, and achievability 36 resulted in an average score of 36.8. The overall score for enhancing the capacity of case managers and adherence supporters' strategies was 92% (n=294).

In their comments, the experts highlighted the importance of empowering case managers and adherence supporters to reduce lost follow-up cases among people living with HIV (PLHIV). However, it suggested that direct engagement with the beneficiaries themselves might yield even better results. It also emphasised the critical role of improving the skills

of case managers and adherence supporters, as well as enhancing communication between various healthcare stakeholders like case managers, ART providers, and data clerks, to effectively track and follow-up with those who have been lost to follow-up.

Two (2) health experts commented as follows:

> **HE6**: *Improving case managers' and adherence supporters' abilities can reduce lost follow-up cases, but working directly on beneficiary (PLHIV) work will get better and better*.
>
> **HE7**: *Enhancing the capacity of ACM/AS and strengthening communication between ACM, ART provider, and data Clark is crucial for tracing of lost to follow-up.*

Strategy 8: Central databases and digital systems development

Table 7.7 above indicated that the evaluation of strategies related to central databases and digital systems development involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 38, applicability 36, relevance 38, effectiveness 38, feasibility 33, sustainability 36, and achievability 34 resulted in an average score of 36.4. The overall score for central databases and digital systems development strategy was 91% (n=291). In their comments, the experts explained the potential benefits of a central database for healthcare but raised concerns about its practicality in developing countries lacking access to the internet. It also highlighted the need to avoid patient duplication and increase service quality through better tracking and monitoring but questioned the feasibility due to resource limitations, emphasised the importance of budget allocation, and raised the query of whether this system would build upon existing electronic medical record (EMR) databases or create a new one. To make it clear, EMR is the offline database that healthcare facilities are currently using. But the central database is a real-time database that will be connected to the facility-level EMR database.

Five (5) health experts commented as follows:

> **HE2**: *If this service starts, it will decrease huge patient duplication self-transfer out*

among health care and increase the quality of service and efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.

HE3: *I don't think that it is practical and can be maintained in developing countries where there is no accessible internet so far*.

HE4: *Its feasibility across all HFs can be resource intensive.*

HE7: *Currently, an EMR data base is available for tracing lost patient; is that new data or will you strengthen the existing one.*

HE10: *It needs an adequate budget.*

Strategy 9: Financial and food assistance for patients

Table 7.7 above indicates that the evaluation of strategies related to financial and food assistance for patients involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 35, acceptability 35, applicability 32, relevance 36, effectiveness 31, feasibility 25, sustainability 27, and achievability 30 resulted in an average score of 31.4. The overall score for financial and food assistance for the patient's strategy was 78% (n=251). In their comments, the experts acknowledged the importance of financial and food assistance for patients who struggle with transportation and nutrition costs. However, it expresses doubt about the long-term sustainability of government or non-government funding for these services, especially given the lifelong nature of healthcare and treatment. The concern is that such aid might lead to dependency rather than sustainable support. Instead, it was suggested to prioritise nutritional counselling and awareness campaigns, emphasising the need for adequate budgeting for these initiatives.

Five (5) health experts commented as follows:

HE2*: Most of the patients were not able to afford the transportation; they had enough nutrition diets to finance it accordingly. So, it is vital for patients to apply these services.*

HE3: *I don't believe the government or non-government afford to practically maintain it for a long period of time since HIC care and treatment by themselves*

are lifelong.

HE6: *While providing patients with food and financial support is a great idea, I disagree that it will not be sustainable and instead will cause patients to become food and financial dependent.*

HE7: *It is not feasible and an issue of sustainability. It is better to focus on nutritional counselling and awareness creation activities*.

HE10: *It needs an adequate budget.*

Strategy 10: Awareness campaigns for the community and patients

Table 7.7 above indicates that the evaluation of strategies related to awareness campaigns for the community and patients involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 38, applicability 36, relevance 37, effectiveness 37, feasibility 37, sustainability 37, and achievability 36 resulted in an average score of 37.0. The overall score for awareness campaigns for the community and patients' strategy was 93% (n=296). One health expert highlighted the importance of considering disclosure and stigma while planning and executing mass awareness campaigns within the community and among patients.

One (1) health expert commented as follows:

HE7: *We need to consider the issues of disclosure and stigma when we are conducting a mass awareness campaign.*

Strategy 11: Capacity building for community and religious leaders

Table 7.7 above indicated that the evaluation of strategies related to capacity building for community and religious leaders involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 37, applicability 37, relevance 36, effectiveness 36, feasibility 34, sustainability 33, and achievability 35 resulted in an average score of 35.6. The overall score for capacity building strategy for community and religious leaders was 89% (n=285). One health expert suggested that while capacity building for religious and community leaders might not directly impact

same-day ART initiation, it could be valuable in encouraging medication adherence and HIV prevention among individuals within their communities, particularly in promoting treatment continuation and preventing transmission to partners and children.

One (1) health expert commented as follows:

> **HE6**: *Building for religious and community leaders could not be beneficial for same-day ART initiation. However, excellent suggestions for individuals to continue taking their medications and preventative HIV from their sexual partner and biological children.*

Strategy 12: Creating automated reminding system through SMS

Table 7.7 above indicated that the evaluation of strategies related to creating an automated reminder system through an SMS involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 39, acceptability 37, applicability 34, relevance 39, effectiveness 38, feasibility 33, sustainability 31, and achievability 34 resulted in an average score of 35.6. The overall score for creating an automated reminder system through an SMS strategy was 89% (n=285). In their comments, the experts raised concerns about the practicality and reach of an automated SMS reminder system for all beneficiaries, given that some patients might not have mobile phones or may be illiterate. There's uncertainty about the effectiveness of such a system, which emphasises the need for budget allocation for materials and airtime.

Three (3) health experts commented as follows:

> **HE4**: *Its applicability and feasibility across all beneficiaries.*
>
> **HE6:** *Because patients are at the ART clinic (linked for same-day ART initiating) and may not have a mobile phone or be illiterate, it is uncertain if an automated SMS reminder system will be created*.
>
> **HE10**: *It needs material and an airtime budget.*

Strategy 13: Assigning focal person for viral load laboratory person

Table 7.7 above indicated that the evaluation of strategies related to assigning a focal person for the viral load laboratory personnel involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 39, applicability 39, relevance 39, effectiveness 39, feasibility 38, sustainability 39, and achievability 39, resulted in an average score of 38.8. The overall score for assigning a focal person for the viral load laboratory person strategy was 97% (n=310). One health expert questioned whether the assignment of a focal person for the viral load laboratory would occur at the facility level or within a regional reference laboratory. It was related to the assignment of a laboratory focal person at the healthcare facility level, responsible for communicating viral load results and facilitating related processes.

One (1) health expert commented as follows:

> **HE7:** *At the facility or at the regional reference lab?*

Strategy 14: Enhancing ART clinic healthcare provider's regular capacity building

Table 7.7 above indicated that the evaluation of strategies related to ART clinic healthcare providers' regular capacity building involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 37, applicability 37, relevance 37, effectiveness 35, feasibility 34, sustainability 37, and achievability 36 resulted in an average score of 36.3. The overall score for an ART clinic healthcare provider's regular capacity-building strategy was 91% (n=290). One health expert emphasised the importance of continuous capacity building for healthcare providers at ART clinics due to the frequent turnover of trained staff and the need to keep them updated on revised strategies and incentives.

One (1) health expert commented as follows:

> **HE7:** *Continuous capacity building is crucial due to the frequent turnover of trained staff and the updating of revised strategies and incentivises*.

Strategy 15: Improving healthcare providers counselling on viral load performance

Table 7.7 above indicated that the evaluation of strategies related to improved healthcare provider counselling on viral load involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 39, applicability 37, relevance 39, effectiveness 39, feasibility 38, sustainability 37, and achievability 38 resulted in an average score of 38.1. The overall score for improved healthcare provider counselling on viral load strategy was 95% (n=305). One health expert stressed the need for high-quality counselling and skilled providers to effectively counsel patients on viral load management.

One (1) health expert commented as follows:

> **HE7**: *Quality of counselling and skilled providers for effective counselling are required.*

Strategy 16: Enhancing ART clinic healthcare provider responsibilities in HIV service provision

Table 7.7 above indicates that the evaluation of strategies related to ART clinic healthcare provider responsibilities involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 38, acceptability 38, applicability 37, relevance 39, effectiveness 39, feasibility 38, sustainability 37, and achievability 39 resulted in an average score of 38.3. The overall score for the ART clinic healthcare provider responsibilities strategy was 96% (n=306). One health expert emphasised that the outlined responsibilities for healthcare providers are particularly crucial and vital for patients starting ART on the same-day they are diagnosed.

One (1) health expert commented as follows:

> **HE2**: *The most important and necessary for same-day ART initiation patients*.

General comments:

Table 7.7 above indicated that the evaluation of strategies related to same-day ART initiation, lost to follow-up, and viral suppression monitoring mechanisms resulted in scores ranging from 78% to 97%. Based on experts' comments, they generally expressed strong support for the strategies, seeing them as impressive and crucial for enhancing HIV treatment and care. They highlighted the need for collaboration among stakeholders and believe these strategies can significantly impact HIV care and support, especially for same-day ART initiation.

The emphasis was placed on clear, self-explanatory strategies that could help achieve the triple 95 target, though implementation might be influenced by community health behaviour and resource availability. Confidentiality in counselling and family-centred care are highlighted as pivotal in reducing follow-up loss, suggesting a focus on nutritional support over financial aid. Overall, the strategies are seen as crucial for improving patient outcomes and potentially contributing to ending the HIV epidemic, with additional suggestions for addressing disclosure, treatment optimisation, supply chain issues, and the potential to enhance retention and viral suppression if properly implemented.

The ten (10) health expert's general comments were presented as follows:

> **HE1**: *I found these strategies to be the best and very impressive in improving the quality of HIV treatment and care services. I hope all concerned stakeholders will collaborate in the implementation of these strategies.*
>
> **HE2**: *These all strategies are very important for HIV services given and will apply in the future to improve patients' health quality during same-day ART initiation.*
>
> **HE3:** *The interim strategies developed were interesting and useful. Hopefully, if adopted as a national strategy, it can make a change in HIV care and treatment at all.*
>
> **HE4**: *Self-explanatory and clearly developed strategies that can contribute to achieving the triple 95 target.*
>
> *Its implementation can be affected based on the community's health seeking behaviour and resources unless most of them are feasible and achievable.*

HE5*: In my opinion, it is very crucial and supportive to have a positive impact on HIV care and support. To have a quality service outcome, this and similar study and strategy development are very important and may solve the problem related to HIV care and support activities*.

HE6: *Counselling for confidentiality and family-centred care and treatment of patients play a pivotal role in reducing the lost to follow-up. Nutritional assessment and support are critical if added rather than financial issues.*

HE7: *The strategies identified in this study will improve patient outcomes and contribute to ending the HIV epidemic in the country.*

HE8: *Everything relating to your choice and description of the strategies is well done.*

HE9: *Other strategies in the area of optimising disclosure, regimen optimisation, DSD models, addressing supply chain issues may be some of the additional issues that need to be addressed.*

HE10: *Most of the developed strategies work if implemented as per plan to enhance retention and viral suppression.*

Based on the comments given by participants, the strategies were modified as follows:

- Interim Strategies 1, 2, and 4 were merged to form Strategy 1;
- One new strategy was added to ensure ARV drug supply for same-day ART initiation service sustainability, now named Strategy 2;
- Pervious interim Strategy 10, which is now Strategy 9, was modified by adding optimising disclosure beside awareness creation;
- The previous interim Strategy 13, which is now Strategy 12, clarified that the assignment of a laboratory person was at the healthcare facility level.

Table 7.8 Indicates modified strategies based on expert comments and their operationalisation for round two validation.

Table 7.8: Modified strategies and their operationalisation for round two validation

Strategies	Operationalisation
Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision	Assess patients' understanding and readiness through structured assessments tool. Subsequently in-depth counselling sessions are conducted to address specific needs, gaps in knowledge, and provide tailored guidance and support. Regular follow-ups and support mechanisms are established to ensure ongoing assistance and reinforcement of information.
Strategy 2: Ensure supplies for ARV and other opportunistic infections	Conduct comprehensive inventory assessments, forecasting, and procurement processes. Reliable supply channels were established, supported by efficient storage and distribution plans. Continuous monitoring, emergency preparedness, quality control measures, and staff training were undertaken to ensure consistent access to ARV medications and related supplies. Regular reporting and evaluation facilitated adaptive improvements for sustained effectiveness.
Strategy 3: Enhanced information and education provision	Develop easily understandable educational materials and disseminate information through various channels (leaflets, posters, and digital platforms) to ensure patients have access to accurate and comprehensive information about same-day ART initiation and its management.
Strategy 4: Monitoring and evaluation of performance	Implement routine assessments to monitor the effectiveness of same-day ART initiation, evaluating patient progress, adherence rates, and the overall impact of interventions, and use this data to make informed improvements.
Strategy 5: Reduction of lost to follow-up	Develop and implement systems to promptly identify patients prior to being lost and reconnect with patients who miss appointments, ensuring continuous engagement in care and reducing the rate of lost follow-ups.
Strategy 6: Enhance the capacity of case managers and adherence supporters	Provide comprehensive training and continuous professional development for case managers and adherence supporters, equipping them with the skills to effectively assist patients in their treatment journey.
Strategy 7: Central databases and digital systems development	Establish centralised databases and digital systems to streamline patient data management, facilitating efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.
Strategy 8: Financial and food assistance for patients	Provide financial support and access to nutritional assistance programmes to alleviate socioeconomic barriers, ensuring patients have the means to afford treatment and maintain good health through proper nutrition in collaboration with partners.
Strategy 9: Awareness campaigns for the community and patients to optimise disclosure	Organise community-wide awareness campaigns through various media channels (TV, radio, community events) to reduce stigma, increase awareness about HIV, and encourage testing and treatment in sustainable ways to optimise disclosure to partners and family.
Strategy 10: Capacity building for community and religious leaders	Conduct workshops or training for community and religious leaders, fostering partnerships to spread awareness and reduce stigma, while also providing ongoing support and resources for these

	leaders.
Strategy 11: Creating automated reminding system through SMS	Implement, test and refine an SMS reminder system linked to appointment schedules while educating both staff and patients on its utilisation and effective response for alerting systems in collaboration with telecommunication.
Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level	Design a specific individual accountable for viral load management, offering comprehensive training and resources, and ensuring continuous coordination between ART clinics and laboratories for effective execution and results utilisation.
Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building.	Establish regular training sessions for healthcare providers, integrating new research and guidelines into these programmes, and assessing the influence of capacity-building efforts on enhancing patient care for sustainable quality service provision.
Strategy 14: Improving healthcare providers counselling on viral load performance	Provide specialised training in viral load counselling, creating tailored scripts or guidelines for viral load discussions, and monitoring provider-patient interactions to ensure enhanced counselling outcomes for patients understanding of viral load benefit.
Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision	Establish and document clear, evolving responsibilities for each healthcare provider, regularly reviewing and updating these duties based on changing needs, and fostering clarity and accountability among the healthcare staff regarding their roles specific to HIV care and treatment.

7.10.3 Round two strategies validation

In round two of strategies validation, the researcher used results and feedback from round one, leading to a total of 15 strategies.

7.10.3.1 Data collection for round two strategies validation

For round two strategies validation, the researcher followed a similar validation process as in round one. The researcher requested healthcare experts who participated in round one strategies validation for round two strategies validation (refer to Annexure 41 for startegies validation participant profiles). In this round, the same strategies validation criteria used in round one were also used (refer to Annexure 40 startegies validation criteria). The modified strategies and their operationalisation (refer to Annexure 54 for modified interim strategies and their operationalisation for round two strategies validation) and round two evaluation tool (refer to Annexure 51 for round two modified interim strategies validation evaluation tool) were shared with each expert via email on the 17th

of December 2023, for them to complete and return.

Participants were requested to score each strategy out of a 4-point scoring system based on validation criteria after their feedback was incorporated to reach consensus. For participants to easily identify the changes made in the modified strategies the researcher has summarised them in Section A of the evaluation tool and highlighted them in red in the evaluation tool (refer to Annexure 51 for round two modified interim strategies validation evaluation tool). In this round, the target set for each strategy needed to get at least 32 points (80%) of the total score possible to be passed. The round two strategies validation data collection was conducted from the 18th December 2023 to 27th of December 2023. The round two strategies validation results are presented below.

7.10.3.2 Round two strategies validation results and description

Ten (10) health experts who participated in strategies validation in round one were also employed in round two strategies validation. In round two strategies validation, strategies with an average score of 32 (80%) or higher from 40 points passed the evaluation and were considered for round three evaluation. However, since the 15 strategies evaluated in round two passed as they scored on average, 33.4 (83%) to 39.6 (99%), the strategies validation reached consensus in round two.

These results indicated that all the strategies evaluated in this round passed validation. Based on these results, the strategies validation ended in two rounds since the results of the strategies validation evaluation passed the minimum cut point of 32 (80%). The summary of round two results is presented in Table 7.9 below. The results of each participant in this round were attached at the end of the thesis (refer to Annexure 55 for round two interim strategies validation (each expert's evaluation results).

Table 7.9: Summary of round two validation results

S.N	Interim strategies	Validation criteria for strategies strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	**Strategy 1:** Assessed patient knowledge and readiness and in-depth counselling provision	40	39	39	40	40	38	39	39	314	39.3	98
2	**Strategy 2:** Ensure supplies for ARV and other opportunistic infections	40	40	38	40	39	36	37	38	308	38.5	96
3	**Strategy 3:** Enhanced information and education provision	40	40	39	40	40	37	38	39	313	39.1	98
4	**Strategy 4:** Monitoring and evaluation of performance	40	40	40	40	37	40	40	38	315	39.4	98
5	**Strategy 5:** Reduction of lost to follow-up	40	40	39	40	39	38	36	38	310	38.8	97
Strategies for lost to follow-up tracing												
6	**Strategy 6:** Enhance the capacity of case managers and adherence supporters	39	39	39	38	37	39	38	37	306	38.3	96
7	**Strategy 7:** Central databases and digital systems development	39	40	38	38	39	35	37	37	303	37.9	95
8	**Strategy 8:** Financial and food assistance for patients	37	35	33	35	35	29	31	32	267	33.4	83
9	**Strategy 9:** Awareness campaigns for the community and patients to optimise disclosure	40	40	36	38	38	38	38	37	305	38.1	95
10	**Strategy 10:** Capacity building for community and religious leaders	40	40	38	39	38	38	39	39	311	38.9	97
11	**Strategy 11:** Creating automated reminding system through SMS	39	40	37	38	37	37	37	36	301	37.6	94
Strategies for viral suppression monitoring mechanisms												

12	**Strategy 12:** Assigning focal person for viral load laboratory person at healthcare facility level	40	40	39	38	38	40	40	40	315	39.4	98
13	**Strategy 13:** Enhancing ART clinic healthcare provider's regular capacity building.	40	40	39	40	40	39	38	40	316	39.5	99
14	**Strategy 14:** Improving healthcare providers counselling on viral load performance	40	40	40	39	40	39	39	39	316	39.5	99
15	**Strategy 15:** Enhancing ART clinic healthcare provider responsibilities in HIV service provision	39	40	39	40	39	40	40	40	317	39.6	99

In this round, the health experts provided 100% (n=10) of the evaluated 15 strategies with supportive comments to enhance the implementation of the developed strategies. The comments given in round two strategies validation evaluation by health experts were summarised under each strategy as follows:

Health experts assigned scores based on eight criteria in all the strategies as indicated in Table 7.9 being clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability. Each validation criteria was scored on 4 points, and when multiplied by the 10 health experts who participated (4x10) in the strategies validation, the score led to a total of 40 points.

Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision

Table 7.9 above indicated that the evaluation of strategies related to assessed patient knowledge and readiness and in-depth counselling provision involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 39, applicability 39, relevance 40, effectiveness 40, feasibility 38, sustainability 39, and achievability 39, resulted in an average score of 39.3. The overall score for assessed

patient knowledge and readiness and in-depth counselling provision strategy was 98% (n=314). From the health expert comments, it was noted that patient knowledge assessment suffers due to manpower shortages and excessive workloads at health facilities. Additionally, there's a gap in empathetic counselling provision due to some health workers lacking the necessary skills. To ensure high-quality counselling, close follow-up and evaluation by facility heads and ART coordinators are suggested for ongoing support and care enhancement in the implementation of this strategy.

Two (2) health experts commented as follows:

> **HE2:** *Assessment patients' knowledge is lower at the healthcare facility level because of a shortage of manpower and work overload. There is some ignorance among the health workers about in-depth counselling provision with patience and empathy for the patients. So, this strategy is needed to improve such problems.*
>
> **HE7:** *To ensure the quality and depth of counselling, it needs close follow-up and evaluation by facility heads and ART coordinators.*

Strategy 2: Ensure supplies for ARV and other opportunistic infections

Table 7.9 above indicates that the evaluation of strategies related to ensuring supplies for ARV and other opportunistic infections involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 38, relevance 40, effectiveness 39, feasibility 36, sustainability 37, and achievability 38, resulted in an average score of 38.5. The overall score for ensuring supplies for ARV and other opportunistic infection strategies was 96% (n=308). Health experts highlighted concerns regarding the stock shortage of ARV and opportunistic infection supplies within the country, prompting the need to address these challenges for future improvement. They identified potential hindrances caused by supply shortages for the implementation of this strategy. Ensuring a consistent and sustainable supply of opportunistic infection drugs emerges as a pressing issue that needs attention for effective long-term management.

Three (3) health experts commented as follows:

HE2: *As the country stocks out of supplies for ARV and desires to plan how to improve the challenges in the future.*

HE4: *A supply shortage may hinder the strategy.*

HE7*: Problem of sustainable supply of opportunistic infection drugs*.

Strategy 3: Enhanced information and education provision

Table 7.9 above indicated that the evaluation of strategies related to enhanced information and education provision involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 39, relevance 40, effectiveness 40, feasibility 37, sustainability 38, and achievability 39, resulted in an average score of 39.1. The overall score for enhanced information and education provision strategy was 98% (n=313). Health experts commented that implementing an enhanced information and education provision strategy might necessitate additional human resources (HR) to be effective. Despite diligent monitoring, there might still be instances where the programme does not show improvement despite efforts to intensively oversee it. This indicated the potential need for further evaluation or alternative approaches to achieve desired enhancements in the programme's efficacy.

Two (2) health experts commented as follows:

HE10: *Additional resources (HR) may be required.*

HE4: *Sometimes, despite intensive monitoring, the programme might not be improved*.

Strategy 4: Monitoring and evaluation of performance

Table 7.9 above indicates that the evaluation of strategies related to monitoring and evaluation of performance involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 40, relevance 40, effectiveness 37, feasibility 40, sustainability 40, and achievability 38, resulted in an average score of 39.4. The overall score for monitoring and evaluation of performance strategy was 98% (n=315). In the round two strategies validation evaluation, no health

expert was given a comment specific to this strategy.

Strategy 5: Reduction of lost to follow-up

Table 7.9 above indicated that the evaluation of strategies related to the reduction of lost to follow-up involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 39, relevance 40, effectiveness 39, feasibility 38, sustainability 36, and achievability 38 resulted in an average score of 38.8. The overall score for reducing lost to follow-up strategy was 97% (n=310). In the round two strategies validation evaluation, no health expert was given a comment specific to this strategy.

Strategy 6: Enhance the capacity of case managers and adherence supporters

Table 7.9 above indicated that the evaluation of strategies related to enhancing the capacity of case managers and adherence supporters involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 39, acceptability 39, applicability 39, relevance 38, effectiveness 37, feasibility 39, sustainability 38, and achievability 37 resulted in an average score of 38.3. The overall score for enhancing the capacity of case managers and adherence supporters' strategies was 96% (n=306). One health expert emphasised the critical need to enhance the capabilities of case managers, adherence supporters, and communication channels between them, ART providers, and data clerks. This strengthening is vital for effectively tracing individuals who have been lost to follow-up, highlighting the essential role these enhanced capacities play in ensuring continuity of care and support within the healthcare system.

One (1) health expert commented as follows:

> **HE7:** *Enhancing the capacity of ACM/AS and strengthening communication between ACM, ART provider, and data Clark is crucial for tracing lost to follow-up.*

Strategy 7: Central databases and digital systems development

Table 7.9 above indicated that the evaluation of strategies related to central databases and digital systems development involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 39, acceptability 40, applicability 38, relevance 38, effectiveness 39, feasibility 35, sustainability 37, and achievability 37 resulted in an average score of 37.9. The overall score for central databases and digital systems development strategy was 95% (n=303). One health expert commented on the utilisation of the existing electronic medical records (EMR) database for tracing lost patients and deliberated on whether to augment the current system or establish an entirely new database. The central database development is different from EMR, which is a real-time database that enables the monitoring of repeated testers that will be connected to each healthcare facility database.

One (1) health expert commented as follows:

> **HE7:** *Currently, an EMR data base is available for tracing the lost to follow-up of patients; is that new data or will you strengthen the existing one?*

Strategy 8: Financial and food assistance for patients

Table 7.9 above indicates that the evaluation of strategies related to financial and food assistance for patients involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 37, acceptability 35, applicability 33, relevance 35, effectiveness 35, feasibility 29, sustainability 31, and achievability 32 resulted in an average score of 33.4. The overall score for financial and food assistance for the patient's strategy was 83% (n=267). Health experts highlighted the significant benefits of financial and food assistance for patients, acknowledging its positive impact on patients' psychological, emotional, and overall health. However, they noted that this strategy is relatively limited in the country and expressed concerns about its sustainability. There's apprehension about the practical affordability and maintenance of such support over the long term, which might lead to dependency on external assistance for accessing ARV drugs. Additionally, while the lack of food or financial support may disrupt ARV drug

adherence, experts indicated it might not be a prevalent factor compared to other challenges patients face.

Two (2) health experts commented as follows:

> **HE2:** *This strategy is very low in the country, to my knowledge, but it is the best for the patients to improve their psychological, mental, emotional, and physical health*.
>
> **HE3:** *It seems difficult for the government or non-government to afford and maintain it practically for a long period of time, and even it may make dependency over support for taking ARV drugs. Also, the absence of food or finances to interrupt ARV drugs may be a minimal factor*.

Strategy 9: Awareness campaigns for the community and patients to optimise disclosure

Table 7.9 above indicates that the evaluation of strategies related to awareness campaigns for the community and patients to optimise disclosure involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 36, relevance 38, effectiveness 38, feasibility 38, sustainability 38, and achievability 37 resulted in an average score of 38.1. The overall score for awareness campaigns for the community and patients to optimise disclosure strategy was 95% (n=305). One health expert stressed the necessity of government policy to legally endorse awareness campaigns aimed at optimising patients' disclosures within the country. They emphasised the pivotal role of such policies in reducing stigma and discrimination, which is crucial for fostering an environment where patients feel comfortable disclosing their status. Furthermore, these campaigns were seen as instrumental in bolstering the acceptance and commitment to ARV adherence among patients within the community.

One (1) health expert commented as follows:

> **HE1:** *To optimise patients' disclosure, government policy is needed to make the campaign legal in the country and also decrease stigma and discrimination. This*

also increases the uptake of ARV adherence.

Strategy 10: Capacity building for community and religious leaders

Table 7.9 above indicates that the evaluation of strategies related to capacity building for community and religious leaders involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 38, relevance 39, effectiveness 38, feasibility 38, sustainability 38, and achievability 39 resulted in an average score of 38.9. The overall score for capacity building for community and religious leaders' strategy was 97% (n=311). One health expert underscored the significance of effectively implementing capacity-building strategies for community and religious leaders. They highlighted that the success of these strategies relies heavily on their proper execution, emphasising their potential to significantly improve retention rates and achieve viral suppression among affected populations.

One (1) health expert commented as follows:

> **HE10:** *Most of the developed strategies work if properly implemented to enhance retention and viral suppression*.

Strategy 11: Creating automated reminding system through SMS

Table 7.9 above indicates that the evaluation of strategies related to creating an automated reminding system through SMS involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 39, acceptability 40, applicability 37, relevance 38, effectiveness 37, feasibility 37, sustainability 37, and achievability 36 resulted in an average score of 37.6. The overall score for creating an automated reminding system through an SMS strategy was 94% (n=301). In the round two strategies validation evaluation, no health expert was given a comment specific to this strategy.

Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level

Table 7.9 above indicates that the evaluation of strategies related to assigning a focal person for viral load laboratory personnel at the healthcare facility level involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 39, relevance 38, effectiveness 38, feasibility 40, sustainability 40, and achievability 40 resulted in an average score of 39.4. The overall score for assigning a focal person for viral load laboratory personnel at healthcare facility level strategy was 98% (n=315). One health expert highlighted the significance of this strategy in facilitating more efficient tracking and response to viral load data, emphasising the need for further exploration and potential implementation of this strategy within healthcare facilities.

One (1) health expert commented as follows:

> **HE2*:*** *There is a rare assessment done in the country for a focal person for viral load in the laboratory at the healthcare facility level. But this is a good strategy for following up on viral load accordingly*.

Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building

Table 7.9 above indicates that the evaluation of strategies related to enhancing ART clinic healthcare providers' regular capacity building involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 39, relevance 40, effectiveness 40, feasibility 39, sustainability 38, and achievability 40 resulted in an average score of 39.5. The overall score for enhancing an ART clinic healthcare provider's regular capacity-building strategy was 99% (n=316). One health expert emphasised the importance of regular capacity building for healthcare providers at ART clinics as a notably compelling strategy for enhancing the quality of service, expressing regret for its absence in previous discussions. Recognised as a crucial approach, it stands out for its potential to significantly improve service standards and professional skills among healthcare providers.

One (1) health expert commented as follows:

> **HE2:** *The most interesting strategy for quality of service, which I missed in the round one.*

Strategy 14: Improving healthcare providers counselling on viral load performance

Table 7.9 above indicates that the evaluation of strategies related to improving healthcare providers counselling on viral load performance involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 40, acceptability 40, applicability 40, relevance 39, effectiveness 40, feasibility 39, sustainability 39, and achievability 39 resulted in an average score of 39.5. The overall score for improving healthcare providers counselling on viral load performance strategy was 99% (n=316). In the round two strategies validation evaluation, no health expert was given a comment specific to this strategy.

Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision

Table 7.9 above indicates that the evaluation of strategies related to enhancing ART clinic healthcare provider responsibilities in HIV service provision involved the participation of ten health experts. The scores for each criterion were as follows: Clarity 39, acceptability 40, applicability 39, relevance 40, effectiveness 39, feasibility 40, sustainability 40, and achievability 40 resulted in an average score of 39.6. The overall score for enhancing ART clinic healthcare provider responsibilities in HIV service provision strategy was 99% (n=317). In the round two strategies validation evaluation, no health expert was given a comment specific to this strategy.

General Comments

Table 7.9 above indicates that the evaluation of strategies related to same-day ART initiation, lost to follow-up, and viral suppression monitoring mechanisms resulted in

scores ranging from 83% to 99% in round two strategies validation. The health experts who participated in this study's strategies validation expressed satisfaction and enthusiasm for participating in the validation of strategies focused on same-day ART initiation, tracing lost to follow-up cases, and monitoring viral suppression mechanisms. They praised the development of the interim strategies, acknowledging their interest and usefulness and highlighting their potential for substantial positive changes in HIV care and treatment on a national scale. The clarity of the strategy content was commended for its potential to enhance the provision of quality clinical HIV care. Moreover, the experts endorsed the second-round strategies, recognising their comprehensive coverage of essential elements for implementing same-day ART, foreseeing improved patient outcomes, and contributing significantly to curtailing the HIV epidemic within the country. They acknowledged the proposed modifications, signalling alignment with the proposed enhancements to these strategies.

Five (5) health experts commented as follows:

> **HE1:** *It is my pleasure to participate in this round of two strategies validation for same-day ART initiation, tracing lost to follow-up cases, and monitoring viral suppression mechanisms*.
>
> **HE3:** *As I stated in my round I strategy validation, the interim strategies developed were interesting and useful. Hopefully, if adopted, some national strategies can make a change in HIV care and treatment at all.*
>
> **HE4:** *The content of the strategy is clearly stated, which can contribute to providing quality clinical HIV care.*
>
> **HE7:** *The second-round strategies identified in this study included all key elements of same-day ART implementation, which will improve patient outcomes and contribute to ending the HIV epidemic in the country.*
>
> **HE9**: I *agree with the modification.*

7.10.4 Ethical considerations

According to Wilson and Darling (2020:4), ethics must be considered when designing questions, determining which methods are appropriate for work, and developing methods

for accessing research subjects and materials. In this study, health experts were voluntarily requested through email to participate in strategies validation. Prior to participation, the researcher invited them to participate in strategies validation (refer to Annexure 49 for an invitation letter for strategies validation), information sheet (refer to Annexure 47 for information sheet for participants for strategies validation), ethical clearance received from the University of South Africa Research and Ethics Committee (refer to Annexure 1 for the UNISA ethical clearance certificate), approval to conduct a study received from the Oromia Regional Health Bureau (refer to Annexure 5 for permission granted to conduct study from ORHB in Afan Oromo) and a signed informed consent form (refer to Annexure 48 for and informed consent form for participants for strategies validation) to each health care expert, ensuring understanding of the study's objectives, potential risks, and their rights as participants.

Anonymity was also assured, protecting individual identities by assigning codes to each expert in data analysis and presentation related to validation. Confidentiality was maintained so that all shared information and data throughout the validation process were kept confidential on a password-protected personal computer. Participants were aware of their right to withdraw without repercussions and offered debriefing sessions if needed, fostering a research environment grounded in trust and integrity while respecting participants' rights and privacy. Finally, the researcher thanked them for their participation and support in the process of strategies validation.

7.11 PRESENTATION OF FINAL STRATEGIES

The final strategies have been formulated through consensus among healthcare experts working at the Federal Ministry of Health, the Oromia Regional Health Bureau, the Harari Health Bureau, and the Sidama Regional Health Bureau. With the health expert’s validation, the researcher endorses the ensuing final strategies and anticipated outcomes (refer to Annexure 56 for final strategies and their operationalisation). The 15 final strategies validated and agreed upon by health experts overall aim, scope, implementation, and action are presented below.

7.11.1 Overall aim of strategies

The main aim of the developed strategies is to optimise same-day ART initiation, enhance the retention of patients initiated on same-day ART within the HIV care system, and improve mechanisms for monitoring viral suppression in healthcare facilities across Ethiopia. These strategies, designed by the researcher, aim to address factors associated with same-day ART initiation as well as navigate the benefits and challenges inherent in implementing same-day ART initiation within the context of Ethiopia's healthcare services.

The outcomes of this study are intended to provide valuable insights for policy designers at the federal level, experts at the regional level, and healthcare providers at the facility level. By understanding and addressing the challenges and benefits related to same-day ART initiation, the strategies aim to contribute to meeting the global targets set for 2030. The strategies outlined included awareness creation, capacity building, and adherence enhancement to further advance progress towards these targets.

7.11.2 Scope and implementation of strategies

The scope of these strategies is to enhance same-day ART initiation, improve tracing of those lost to follow-up, and enhance mechanisms for monitoring viral suppression across healthcare facilities providing ART services in Ethiopia. Furthermore, it will support the healthcare facilities in resource utilisation, proper planning, enhancement, and implementation of same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms.

The developed strategies will be implemented at different health system levels in Ethiopia, which include the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community levels. The particulars of implementing these strategies, including the targeted levels at which the strategy was implemented and the specific actions required for their execution, are presented in the following sections for each strategy.

7.11.2.1 Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision

The implementation of this strategy will focus on healthcare facilities offering same-day ART services. It directly addresses the patient's knowledge and preparedness for same-day ART initiation, emphasising the crucial relationship between patients and healthcare providers. Additionally, there is potential for extending this strategy to the community level, particularly in locations where same-day ART initiation services are available. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.1.1 Strategy 1 actions

Key actions for Strategy 1 that healthcare facilities and healthcare professionals could take to implement this strategy are:

- Conduct patient's knowledge assessments using standardised tools or interviews to assess the patient's understanding of their health condition, treatment options, and recommended lifestyle changes;
- Evaluate the patient's readiness based on the assessment and open-ended discussions to enable the patient's decision for ART treatment;
- Provide in-depth counselling with detailed explanations and visual aids on the patient's health condition, treatment options, and potential outcomes based on the patient's level of understanding;
- Develop individualised care plans with the patient to set realistic and achievable health-related goals;
- Personalised treatment plans that address the patient's specific needs, considering their knowledge, preferences, and readiness for lifestyle modifications;
- Provide educational materials written in local language that support the patients with key information discussed during counselling sessions;
- Scheduled follow-up sessions to monitor progress, address concerns, and provide ongoing support; and
- Link patients with support groups within and outside healthcare facilities to encourage

patients to participate in support groups or community programmes related to their health condition for additional support and shared experiences.

7.11.2.2 Strategy 2: Ensure supplies for ARV and other opportunistic infections

This strategy is implemented at the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community levels where ART services are offered. It emphasises the need to guarantee the availability of necessary supplies for same-day ART initiation at all these levels to ensure the sustainable and effective implementation of this approach.

7.11.2.2.1 Strategy 2 actions

Key actions for strategy 2 that healthcare facilities could take to implement this strategy are:

- Establish or strengthen a supply chain management system to track and manage the flow of medications from regional hubs to healthcare facility pharmacies;
- Regularly assess and optimise the supply chain to identify and address potential bottlenecks or issues affecting the timely delivery of medications;
- Implement a system for real-time monitoring of medication stocks at healthcare facilities;
- Establish strong partnerships and agreements with pharmaceutical manufacturers to ensure a consistent and timely supply of antiretroviral drugs and medications for opportunistic infections in collaboration with zonal and regional health bureaus;
- Maintain emergency stockpiles of antiretroviral drugs and key medications for opportunistic infections to address unexpected disruptions in the supply chain;
- Implement rigorous quality assurance measures to ensure the safety, efficacy, and reliability of the supplied medications;
- Regularly audit suppliers and manufacturers to verify compliance with quality standards;
- Provide training for healthcare professionals and staff on proper inventory management practices to avoid waste and stockouts;

- Foster strong communication and coordination between healthcare facilities, pharmacies, suppliers, and relevant government agencies to streamline the supply chain;
- Solicit feedback from patients, healthcare providers, and the community to identify potential issues with medication availability and address them proactively.

7.11.2.3 Strategy 3: Enhanced information and education provision

This strategy is implemented with a focus on healthcare facilities and community-level offerings of same-day ART services. Additionally, it could be done at the national level through broadcast, and it directly addresses the patient's knowledge and community knowledge during same-day ART initiation. Furthermore, there is potential for extending this strategy to the community level, particularly in locations where same-day ART initiation services are available. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.3.1 Strategy 3 actions

Key actions for strategy 3 that healthcare facilities and community healthcare providers could take to implement this strategy are:

- Conduct a need assessment to understand the knowledge gaps, preferences, and information needs of the target audience;
- Develop educational materials (brochures, pamphlets, videos, and online content) that are culturally sensitive, language-appropriate, and tailored to the specific needs of the audience in collaboration with town and zonal health departments;
- Utilise different communication channels, including national and local media, social media, websites, printed materials, workshops, community events, and multimedia platforms, to reach a diverse audience;
- Community engagement in the form of community outreach programmes to directly connect with the target audience can involve setting up information booths at community events;

- Capacity building for educators, health extension workers, and healthcare professionals to ensure they can effectively communicate correct information and answer questions from the audience;
- Establish a feedback mechanism to gather insights from the audience that can help in refining educational materials and strategies based on the needs and preferences of the recipients;
- Develop and offer educational materials in multiple languages (local languages) to reach all target audiences;
- Approach to culturally relevant messaging to align with the cultural norms, beliefs, and values of the target audience, making the information more relatable and acceptable;
- Monitor and evaluate the effectiveness of information and education provision efforts; and
- Develop a sustainability plan to ensure the continued availability and relevance of educational resources over time.

7.11.2.4 Strategy 4: Monitoring and evaluation of performance

Monitoring of performance regarding same-day ART initiation, lost to follow-up, and viral suppression monitoring will be conducted at various levels, including the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community settings where ART services are provided. Special emphasis should be placed on healthcare facility-level assessments, making them a focal point in the primary performance monitoring for same-day ART. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.4.1 Strategy 4 actions

Key actions for strategy 4 that the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and the community could take to implement this strategy are:

- Establish key performance indicators (KPIs) for monitoring related to same-day ART

initiation from DHIS2 (the demographic health formation system);

- Develop a same-day ART initiation-specific monitoring and evaluation (M&E) plan with monthly-based timelines for assessing same-day ART initiation performance;
- Provide training on data utilisation for decision-making by healthcare providers on the importance of same-day ART initiation;
- Develop a real-time data entry system to ensure that information on same-day ART initiation is captured promptly and accurately;
- Schedule regular multi-disciplinary team (MDT) meetings to review and analyse trends, identify areas for improvement, and celebrate successes;
- Establish benchmarks and compare same-day ART initiation performance against national or international standards to assess the programme's effectiveness;
- Implement systems to track patient follow-up, ensuring that individuals initiated on ART on the same-day are monitored for adherence and potential challenges;
- Establish a feedback mechanism for healthcare providers to share insights and challenges related to same-day ART initiation;
- Conduct periodic quality assurance audits to ensure adherence to protocols and guidelines for same-day ART initiation;
- Collect feedback from patients regarding their satisfaction with the same-day ART initiation process; and
- Document and share best practices within the healthcare facility across facilities, town health offices, zonal health departments, and regional health bureaus to promote learning and improvement.

7.11.2.5 Strategy 5: Reduction of lost to follow-up

This strategy will be implemented at the healthcare facility and community level, specifically targeting patients who commence same-day ART. This approach aims to minimise the risk of patients becoming lost to follow-up after initiating same-day ART on the very day they receive a diagnosis of HIV. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.5.1 Strategy 5 actions

Key actions for strategy 5 that healthcare facilities and the community could take to implement this strategy are:

- Ensure that healthcare providers engage patients early in the treatment process, providing clear and comprehensive education about the importance of adhering to ART and attending follow-up appointments;
- Offer patient-centred counselling sessions to address any concerns, fears, or misconceptions about HIV treatment that can help build trust and commitment to ongoing care between patients and healthcare providers;
- Develop individualised treatment plans that consider the patient's lifestyle, preferences, and potential barriers to adherence, with follow-up with one nurse or physician at least for the first six months;
- Conduct assessments to identify potential barriers to adherence and follow-up, such as transportation issues, stigma, or financial constraints, and to address these barriers as early as possible;
- Encourage patients to identify and involve supportive friends, family members, or peers who could provide help and encouragement throughout the treatment process;
- Implement efficient and convenient appointment scheduling systems to reduce wait times and inconvenience for patients, making it more likely for them to attend follow-up visits;
- Utilise reminder systems, which could be text messages or phone calls, to remind patients of upcoming appointments and medication refills;
- Implement programmes and interventions to reduce HIV-related stigma and discrimination within the community and healthcare settings;
- Establish adherence support programmes, medication adherence counselling, and support groups to help patients stay on track with their treatment plan;
- Use data analytics to identify patterns and trends related to lost follow-up cases. Implement targeted interventions based on this data to address specific challenges; and

- Establish a feedback mechanism for patients to express concerns, suggestions, or grievances, enabling healthcare providers to address issues and improve services.

7.11.2.6 Strategy 6: Enhance the capacity of case managers and adherence supporters

This strategy will be implemented at healthcare facility and community levels where same-day ART service is provided. It focuses on strengthening the skills, knowledge, and resources of individuals responsible for managing and supporting patients receiving ART. But the implementation of this strategy requires collaboration between the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and non-governmental organisations. The reason is that it requires financial resources and trained manpower who are capable of providing training for case managers and adherence supporters. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.6.1 Strategy 6 actions

Key actions for Strategy 6 that healthcare facilities and community-level care providers could take to implement this strategy are:

- Develop and implement comprehensive training programmes for case managers and adherence supporters that should cover various aspects, including HIV treatment guidelines, counselling skills, patient engagement strategies, and the use of relevant technologies;
- Establish a system for ongoing education and professional development to keep case managers and adherence supporters updated on the latest developments in HIV care, treatment protocols, and patient management;
- Continues mentorship programmes where experienced case managers mentor, physicians, and nurses transfer practical knowledge and foster a supportive professional environment;
- Provide training on the use of technology tools and platforms that can aid in patient

management, data tracking, and communication in collaboration with data clerks and healthcare providers;

- Enhance regular supervision and feedback to monitor the performance of case managers and adherence supporters;
- Foster collaboration with HIV focal persons, nurses, social workers, and other experts to provide specialised training and support for case managers and adherence supporters;
- Facilitate regular review meetings where case managers can discuss challenging cases, share insights, and seek input from colleagues to enhance problem-solving and decision-making skills;
- Educate case managers and adherence supporters on the importance of self-care. Provide resources and support to prevent burnout and ensure their own well-being;
- Establish a recognition programme to acknowledge and reward the efforts and achievements of case managers and adherence supporters, which can boost morale and motivation; and
- Continues quality improvement initiatives based on feedback and data analysis to continuously enhance the effectiveness of case management and adherence support services.

7.11.2.7 Strategy 7: Central databases and digital systems development

This strategy will be implemented at the Federal Ministry of Health and regional health bureaus. It involves the creation and enhancement of centralised databases and digital systems to improve the management of data related to HIV treatment and care that is linked to healthcare facilities, enabling real-time data access and avoiding duplication of data. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.7.1 Strategy 7 actions

Key actions for strategy 7 that the Federal Ministry of Health and regional health bureaus could take to implement this strategy are:

- Conduct a need assessment to identify the specific data management requirements and challenges within the HIV treatment and care system;
- Define the objectives of the central databases and digital systems with key functionalities, data elements, and desired outcomes aligned with healthcare facility-level databases;
- Engage key stakeholders, including healthcare providers, IT specialists, administrators, and end-users, in the design and development process to ensure a comprehensive and user-friendly system;
- Choose technology platforms and systems that align with the organisation's requirements, scalability, and security standards;
- Develop training programmes for users to ensure they are proficient in using the central databases and digital systems;
- Integrate the new central databases and digital systems with existing health information systems (DHIS2) and electronic health databases to create a seamless flow of information;
- Design the central databases and digital systems to be accessible via mobile devices, ensuring flexibility and ease of use for healthcare providers who may need to access information;
- Implement data quality assurance measures, including validation checks and routine data audits, to maintain the accuracy and reliability of information stored in the central databases;
- Schedule regular updates and maintenance to address challenges and security vulnerabilities and to incorporate new features or improvements based on user feedback;
- Establish a feedback mechanism for users to provide insights, report issues, and suggest improvements to enhance the usability and functionality of the central databases and digital systems; and
- Continuously evaluate the performance and impact of the central databases and digital systems against predefined objectives.

7.11.2.8 Strategy 8: Financial and food assistance for patients

This strategy will be implemented at healthcare facilities and community levels with support and guidance from the Federal Ministry of Health, where same-day ART service is provided. It aims to provide additional support to patients starting and receiving same-day ART initiation, addressing potential barriers to adherence and retention in care. However, it requires collaboration between the Federal Ministry of Health, regional health bureaus, non-governmental organisations working on HIV, and the private sector for resource mobilisation and policy design for its intervention. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.8.1 Strategy 8 actions

Key actions for strategy 8 that the Federal Ministry of Health and regional health bureaus, in collaboration with healthcare facilities and the community, could take to implement this strategy are:

- Conduct a need assessment to identify financial and food-related challenges that patients may face during the HIV treatment process;
- Establish eligibility criteria for financial and food assistance programmes based on income level, household size, and vulnerability;
- Establish collaborations with social services agencies, NGOs, and community organisations to leverage existing programmes and resources for financial and food assistance;
- Provide financial counselling services to help patients understand available assistance programmes, manage their finances, and navigate potential economic challenges;
- Support food distribution programmes that provide nutritional support to patients in collaboration with local aid organisations to ensure a sustainable supply of food;
- Consider providing transportation assistance to address mobility challenges that may prevent patients from accessing healthcare facilities for follow-up appointments and medication refills, at least for the first six months;

- Establish emergency funds to address urgent financial needs that may arise, preventing patients from discontinuing treatment due to unforeseen circumstances;
- Conduct community workshops and information sessions to educate patients about available support services, eligibility criteria, and the application process for financial and food assistance;
- Conduct regular assessments to reassess patients' financial and food assistance needs over time, adapting assistance plans as circumstances change;
- Establish linkages with employment services to help patients build skills and enhance their employability, addressing underlying economic challenges;
- Conduct regular monitoring and evaluation systems to assess the effectiveness of financial and food assistance programmes, making data-driven improvements as needed; and
- Develop sustainability plans for financial and food assistance programmes to ensure their continued availability and effectiveness over the long term.

7.11.2.9 Strategy 9: Awareness campaigns for the community and patients to optimise disclosure

This strategy will be implemented at the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community levels. It aims to promote open communication about HIV status, reduce stigma, and create a supportive environment for individuals living with HIV to disclose their status through different communication platforms. The responsibility of this strategy implementation varies from national to community level through the Federal Ministry of Health policy and guidance development. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.9.1 Strategy 9 actions

Key actions for strategy 9 that the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community could take to implement this strategy are:

- Develop a comprehensive standard operation plan for the awareness campaign, outlining objectives, target audiences, key messages, and appropriate channels for communication;
- Engage with community leaders, religious leaders, healthcare providers, local organisations, and advocacy groups to build partnerships and garner support for the awareness campaign;
- Ensure that awareness campaigns are culturally sensitive and consider the diverse cultural backgrounds and beliefs of the target community;
- Develop clear and positive messages that emphasise the importance of disclosure for HIV, address misconceptions, and highlight the benefits of open communication within relationships with responsible bodies;
- Utilise national broadcast, including television, radio, social media, and community newsletters, to disseminate campaign messages widely;
- Organise community workshops, seminars, and events to facilitate face-to-face discussions about HIV disclosure, stigma reduction, and creating supportive communities, including religious institutions;
- Provide training for healthcare providers on how to support patients in disclosing their HIV status, including guidance on effective communication and addressing concerns;
- Develop and distribute educational materials, including brochures, posters, and pamphlets, that provide information on HIV disclosure, its importance, and dispel common myths in local languages;
- Establish anonymous hotlines or online chat services where individuals can seek advice and guidance on disclosing their HIV status in a confidential and supportive environment;
- Information on legal protections against HIV-related discrimination and resources for legal support are included in the awareness campaign materials;
- Develop an interactive website or mobile app with resources, information, and forums for discussions related to HIV disclosure and community support;
- Establish a feedback mechanism to gather input from the community, religious leaders, and patients, allowing for continuous improvement and adaptation of the

awareness campaign; and

- Evaluation and impact assessment plan to assess the impact of the awareness campaign.

7.11.2.10 Strategy 10: Capacity building for community and religious leaders

This strategy will be implemented from the Federal Ministry of Health to the community level. It should involve zonal health departments, town capacity building for community and religious leaders on HIV care and treatment, and enhancing the knowledge and skills of community and religious leaders to effectively support individuals affected by HIV and contribute to reducing stigma. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.10.1 Strategy 10 actions

Key actions for Strategy 10 that the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and the community could take to implement this strategy are:

- Conduct a need assessment to identify knowledge gaps and training needs among community and religious leaders regarding HIV care and treatment;
- Develop customised training programmes that address the specific needs, concerns, and roles of community and religious leaders in the context of HIV care and treatment;
- Enhance engagement and collaboration with community and religious leaders by involving them in the planning and development of training programmes;
- Organise expert-led workshops and seminars delivered by healthcare professionals, HIV focal persons, and psychologists to provide in-depth knowledge on HIV care, treatment, and related psychosocial aspects;
- Focus on sessions that specifically address the stigma and discrimination associated with HIV. Equip leaders with the skills to challenge and mitigate stigma within their communities;
- Provide training on effective communication and counselling skills to enable community and religious leaders to engage in open and supportive conversations with

individuals affected by HIV;

- Ensure that community and religious leaders have a clear understanding of HIV treatment protocols, the importance of adherence, and the role they can play in encouraging treatment initiation and continuity;
- Integrate discussions on religious perspectives related to HIV into the training, addressing potential misconceptions and reinforcing compassionate and empathetic responses;
- Provide resource materials, pamphlets, and guides that leaders can distribute within their communities to disseminate accurate information about HIV care and treatment;
- Establish peer learning networks among community and religious leaders, allowing them to share experiences, insights, and best practices for supporting individuals affected by HIV;
- Support community outreach programmes led by trained leaders to reach individuals who may be hesitant to seek HIV care and treatment services;
- Provide regular updates and refresher courses to keep community and religious leaders informed about advancements in HIV care and treatment;
- Facilitate partnerships between community and religious leaders and healthcare providers to strengthen the referral system and collaboration in supporting individuals with HIV; and
- Implement a monitoring and evaluation system to assess the impact of the capacity-building programmes.

7.11.2.11 Strategy 11: Creating automated reminding system through SMS

This strategy will be implemented at the national level at the Federal Ministry of Health in collaboration with telecommunication, which will be liked by the national and facility-level databases. The strategy aims to create an automated reminder system (SMS) for HIV care and treatment. Once the SMS system is created at the national level, practical implementation will be at the healthcare facility level to remind patients through SMS to send reminders and information to individuals receiving HIV care and treatment. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.11.1 Strategy 11 actions

Key actions for strategy 11 that the Federal Ministry of Health, in collaboration with regional health bureaus and healthcare facilities, could take to implement this strategy are:

- Choose a reliable and user-friendly SMS platform or software that can support the automated reminding system;
- Integrate the SMS reminder system with existing healthcare facility-level systems, including DHIS2 and appointment scheduling systems in the facility-level database, to ensure accurate and timely information;
- Customise SMS messages to include personalised information such as appointment dates, medication reminders, and educational content relevant to the individual's treatment plan;
- Allow individuals to choose their preferred language for receiving SMS reminders, ensuring that communication is accessible and culturally sensitive;
- Obtain explicit consent from individuals before enrolling them in the SMS reminder system;
- Implement automated appointment reminders that include the date, time, and location of scheduled healthcare appointments;
- Send reminders for scheduled laboratory tests (viral load testing) or follow-up visits;
- Establish a feedback mechanism to gather input from individuals regarding the effectiveness of the SMS reminder system;
- Provide training for individuals on how to use and interact with the SMS reminder system. Ensure that they understand the purpose and benefits of the system; and
- Continuously assess the performance of the SMS reminding system and make necessary improvements based on user feedback, technological advancements, and changing healthcare needs.

7.11.2.12 Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level

This strategy will be implemented at the healthcare facility level through the modification of the roles and responsibilities of laboratory personnel. The strategy aims to assign a specific individual or laboratory team to oversee and manage viral load laboratory results for patients who initiate ART on the same-day. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.12.1 Strategy 12 actions

Key actions for strategy 12 that the healthcare facility could take to implement this strategy are:

- Identify and designate a qualified and responsible healthcare professional as the focal person for managing viral load laboratory results for same-day ART-initiated patients. This person could be a nurse, laboratory technician, or another healthcare staff member;
- Provide training to the designated focal person on the importance of viral load monitoring, the interpretation of results, and the significance of early intervention based on the results;
- Ensure that the focal person has a clear understanding of the laboratory processes involved in viral load testing, including sample collection, transportation, analysis, and result reporting;
- Facilitate regular communication and coordination between the focal person and laboratory staff to ensure seamless sample processing, result generation, and timely reporting;
- Integrate the responsibilities of the focal person with health information systems (DHIS2) and facility-level ART databases for viral load results and real-time data access;
- Work with the focal person to establish a system for scheduling follow-up appointments with patients to discuss viral load results and make necessary adjustments to treatment plans;

- Equip the focal person with skills to provide counselling and education to patients about the significance of viral load monitoring, the interpretation of results, and the implications for treatment adherence;
- Establish protocols for notifying healthcare providers, patients, and other relevant stakeholders of viral load results promptly;
- Develop protocols for the focal person to address cases of treatment failure indicated by high viral loads;
- Set up a system for the focal person to monitor viral load data regularly and generate reports;
- Establish a feedback mechanism to allow healthcare providers, patients, and other stakeholders to provide input on the effectiveness of the focal person's role and the overall management of viral load results; and
- Ensure that the focal person receives continuous training and updates on new developments, guidelines, and technologies related to viral load monitoring and HIV care.

7.11.2.13 Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building

This strategy will be implemented by the regional health bureaus in collaboration with the zonal and town health offices. It aims to enhance a comprehensive capacity-building programme for healthcare providers in ART healthcare facilities, focusing on the principles and practices specific to same-day ART initiation. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.13.1 Strategy 13 actions

Key actions for strategy 13 that the regional health bureaus, in collaboration with the zonal and town health offices, could take to implement this strategy are:

- Design specific training modules covering the key aspects of same-day ART initiation, including eligibility criteria, patient assessment, counselling techniques, medication

administration, and follow-up procedures;

- Organise regular workshops and seminars to facilitate hands-on learning experiences, discussions, and knowledge-sharing among healthcare providers;
- Establish a continuous professional development programme that is friendly to all healthcare providers to ensure ongoing learning and skill refinement for healthcare providers involved in ART clinics, which could be online courses, webinars, or access to relevant literature;
- Develop and distribute comprehensive resource materials, guidelines, and protocols to healthcare providers, serving as quick references and tools for effective same-day ART initiation;
- Implement mentorship programmes where experienced healthcare providers mentor their peers, fostering a supportive learning environment and facilitating the transfer of practical knowledge and expertise;
- Establish regular assessments and feedback mechanisms to evaluate the effectiveness of the capacity-building programme;
- Forge partnerships with educational institutions to integrate same-day ART initiation principles into relevant healthcare curricula, ensuring that future healthcare professionals are well-prepared for this practice; and
- Implement a robust monitoring and reporting system to track the participation and progress of healthcare providers in the capacity-building programme.

7.11.2.14 Strategy 14: Improving healthcare providers counselling on viral load performance

This strategy will be implemented at the healthcare facility and community level, where same-day ART service is provided. It aims to improve healthcare providers' counselling on viral load performance and result utilisation, which enhances the communication and counselling skills of healthcare providers when discussing viral load results with patients. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.14.1 Strategy 14 actions

Key actions for strategy 14 that the healthcare facility and community could take to implement this strategy are:

- Develop specialised training programmes focused on counselling skills specifically related to discussing viral load results;
- Emphasise a patient-centred approach in counselling, ensuring that healthcare providers consider the individual needs, preferences, and concerns of each patient when discussing viral load performance;
- Encourage healthcare providers to use clear and understandable language when discussing viral load results, avoid medical jargon, and provide information in a way that patients can comprehend;
- Foster interactive counselling sessions where patients can actively participate in discussions about their viral load performance, which encourage questions and address any uncertainties or misconceptions;
- Use visual aids, charts, and educational materials to supplement counselling sessions that can help patients better understand the concept of viral load and its significance;
- Emphasise the link between viral load performance and treatment adherence to provide guidance on maintaining adherence to ART to achieve and sustain viral suppression;
- Integrate psychosocial support into counselling sessions, acknowledging the emotional impact of viral load results through trained healthcare providers to address patient emotions and concerns;
- Educate patients about the purpose of viral load testing, how it is conducted, and why it is a crucial component of HIV management to ensure that patients understand the role of viral suppression in maintaining overall health;
- Train healthcare providers to effectively communicate with and support patients when changes in treatment are necessary due to viral load challenges;
- Emphasise the importance of privacy and confidentiality during counselling sessions to create a safe and secure environment for patients to openly discuss their concerns and experiences;

- Implement a system for receiving feedback from patients about their counselling experiences and using this feedback to evaluate the effectiveness of counselling practices and make continuous improvements;
- Ensure integration with support services, such as mental health counselling or peer support groups, to provide comprehensive care and address the holistic needs of patients; and
- Facilitate regular supervision and peer learning sessions for healthcare providers to discuss challenging cases, share insights, and learn from each other's experiences in counselling on viral load performance.

7.11.2.15 Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision

This strategy will be implemented at the healthcare facility and community level, where same-day ART service is provided. All healthcare providers working on HIV and HIV-related activities should have a file that indicates their role in HIV care and treatment at the healthcare facility level. It aims to optimise the roles and responsibilities of healthcare providers in ART clinics to improve the overall delivery of HIV services. The detailed actions related to the implementation of this strategy are presented below.

7.11.2.15.1 Strategy 15 actions

Key actions for strategy 15 that the healthcare facility and community could take to implement this strategy are:

- Conduct a comprehensive review of healthcare provider roles and responsibilities in ART clinics to identify areas for enhancement and optimisation;
- Delegate tasks based on the expertise and competencies of healthcare providers. Ensure that tasks are distributed efficiently to maximise the capabilities of the healthcare team;
- Provide specialised training to healthcare providers to enhance their skills in specific areas relevant to HIV service provision, such as counselling, viral load monitoring,

adherence support, and co-morbidity management;

- Establish clear communication channels among healthcare providers within the ART clinic and other service delivery units that provide HIV testing to encourage regular team meetings to discuss patient cases, share insights, and coordinate care plans;
- Regular MDT meeting collaboration involves involving healthcare professionals with diverse expertise, including physicians, nurses, counsellors, social workers, and pharmacists. Encourage teamwork to address the multifaceted needs of patients;
- Strengthen healthcare providers' responsibilities in providing effective treatment adherence support;
- Implement a coordinated follow-up system where healthcare providers systematically track patient progress, conduct timely follow-up appointments, and adjust treatment plans as needed;
- Integrate support services, such as mental health counselling, nutritional counselling, and peer support, into the responsibilities of healthcare providers to offer comprehensive care to individuals living with HIV;
- Explore task-shifting strategies where certain responsibilities can be delegated to lower-level healthcare professionals or community health workers, ensuring that tasks are efficiently managed;
- Expand healthcare providers' roles to include community outreach and education initiatives. Engage in community awareness programmes, workshops, and health education campaigns to promote HIV prevention and care;
- Implement quality improvement initiatives within the ART clinic. Regularly assess and improve healthcare delivery processes, ensuring that services align with evidence-based practices and standards;
- Include responsibilities related to stigma reduction efforts and training healthcare providers to create a supportive and non-judgmental environment within the clinic to encourage open communication with patients;
- Enhance healthcare providers' responsibilities in monitoring and reporting patient data accurately;
- Establish a system for regular supervision and feedback to provide constructive feedback to healthcare providers, recognising their contributions and addressing areas for improvement; and

- Encourage healthcare providers to engage with the community through partnerships with local organisations, schools, and community leaders.

7.12 SUMMARY

This chapter presented the strategies, development, and validation that aim to enhance same-day ART initiation, lost to follow-up tracing and viral suppression monitoring approaches. The strategies were developed based on the integration of qualitative findings and quantitative results integration, theoretical framework, logical reasoning, and literature reviews. The strategies have three thematic areas and 16 strategic key areas. After validation, the strategies were modified, and a total of 15 strategies were validated as strategies for same-day ART initiation lost to follow-up and viral suppression monitoring mechanisms in this study. The developed strategies were presented with a description of each key strategies an expected outcome, and key activities to be done to achieve the desired goal. Following Chapter 8, presented the conclusions, recommendations, and limitations of the study.

CHAPTER 8
CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

8.1 INTRODUCTION

Strategies development and validation for same-day ART initiation, lost to follow-up tracing and viral suppression mechanisms were presented in Chapter 7. The study's purpose was to examine the same-day ART initiation regarding viral suppression and retention of patients in HIV care. Furthermore, the researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms. A three-phase exploratory, sequential mixed-methods research design was applied to comprehensively address the complexities surrounding same-day ART initiation and its impact on viral suppression and retention in HIV care in Ethiopia. The qualitative phase, Phase 1, provided valuable insights into the initiation of same-day ART, highlighting both its benefits and challenges within Ethiopian healthcare contexts. Phase 2, the quantitative phase, rigorously evaluated the status of same-day ART initiation in terms of patient retention and viral suppression at healthcare facilities across Ethiopia, offering concrete data to inform practice and policy. Finally, Phase 3 focused on the development and validation of strategies aimed at optimizing same-day ART initiation processes, improving the tracing of HIV patients lost to follow-up, and enhancing viral load monitoring mechanisms.

Accordingly, the current chapter presents a summary of the integrated findings, strategy development, conclusions, recommendations, the study's contributions, limitations, and overall concluding remarks derived from the findings and results of the study that build upon the purpose and objectives of the study.

8.2 SUMMARY OF INTEGRATED FINDINGS

The summary of this study was based on the three phases of the study. Phase 1 was qualitative in respect of the interviews. Phase 2 was quantitative and encompassed retrospective document analysis, while Phase 3 was premised on strategies development

and validation for same-day ART initiation, tracing HIV patients lost to follow-up, as well as viral suppression monitoring mechanisms.

8.2.1 Phase 1: Qualitative approach

Phase 1 was used to explore the factors that have led to lost to follow-up among the patients who have started on same-day ART, as well as describe the benefits and challenges related to same-day antiretroviral initiation, which constituted this study's objectives. In this phase, the study revealed 21 themes and 114 sub-themes, all of which are presented, discussed, and interpreted separately by the researcher as emanating from the study participants. The latter were classified as physicians, nurses, case managers, adherence supporters, and patients (refer to Chapter 5). According to the findings of this study, the experiences of physicians, nurses, case managers, adherence supporters, and patients regarding same-day antiretroviral therapy initiation status associated with viral suppression and retention in HIV demonstrated the reality on the ground.

The findings showed that the benefits of same-day ART initiation included advanced viral load suppression and the promising potential to mitigate lost to follow-up cases. In contrast, the successful implementation of same-day ART initiation also encounters disadvantages. The findings showed that lost to follow-up, problems of disclosure, and adherence to medical treatment issues were some of the disadvantages observed in this study. Key findings related to the qualitative approach were summarised with respect to the research objective as reflected in the ensuing sub-sections.

8.2.1.1 Factors which have led to lost to follow-up for patients who have started on same-day

The findings from the qualitative phase showed that several factors contribute to the lost to follow-up cases among patients who have initiated same-day treatment. One major factor is linked to the skills and knowledge of the counsellors. The major gaps identified by this finding were that the main barrier to convincing patients to accept their results and

start on same-day ART is a lack of specific topics for new HIV-positives and psychologically based counselling with a skilled counsellor.

A study undertaken in Kenya and Uganda on patient and provider perspectives concerning rapid ART initiation, reported patients' satisfaction with the individualised support they received, including providers' knowledge of their drug schedule, their availability during off-hours, and phone call appointment reminders, which has a positive impact on engagement in HIV care (Mwangwa, Getahun, Itiakorit, Jain, Ayieko, Owino, Akatukwasa, Maeri, Koss, Chamie & Clark 2021:6). This showed that counsellor knowledge and support for patients have an impact on patients' HIV results, acceptance, same-day ART initiation, and adherence to ART medications.

Another finding revealed by this study was that fear of stigma and challenges related to disclosure pose significant barriers to follow-up. The fear of being stigmatised can act as a significant deterrent, preventing individuals from seeking necessary medical attention and adhering to their treatment plans. This emotional burden may lead to a reluctance to engage with healthcare services, resulting in missed appointments and ultimately resulting in the loss of patients from follow-up care. A concurrent qualitative study was undertaken in Gauteng Province, South Africa, focusing on patients' perspectives regarding the quality of same-day ART initiation. The findings revealed that factors such as acceptance of HIV status, motivation to lead a healthy life, interpersonal-level facilitators (including family and peer support, openness with partners), and community-level facilitators (such as encouragement from religious institutions, reduced stigma, and overall community acceptance) were identified as negative influences (Scott et al 2021:179).

Providers' and patients' relationships were another contributing factor for lost to follow-up identified in this study. The study revealed that patients didn't know who to consult when they had difficulties regarding ART treatment. The problem stems from a lack of healthcare providers and patients' close relationships as a result of work overload and training gaps among healthcare providers. This will lead to lost follow-up. A concurred study was conducted in San Francisco and Chicago on the rapid interaction of provider

approaches to implementing rapid ART showed that providers who established partnerships with patients in the rapid interaction also assisted patients to mentally narrow the experience of taking medication from the clinic to the home environment (Moran, Koester, Le Tourneau, Coffey, Moore, Broussard, Crouch, VanderZanden, Schneider, Lynch & Roman 2023:6).

The other most important factors that led to lost follow-up reported by participants in this study were religious-related concerns, particularly those associated with holy water, and prying by religious leaders emerged as a prevalent cause for lost to follow-up requiring intervention. A concurrent study conducted in Sub-Saharan Africa reported aspects of religious beliefs as barriers to ART as follows: the belief in obtaining healing through prayers, the belief in faith healing or taking a step of faith, the belief that taking ART is belittling the healing power of God, and the belief in the prophetic healing words from religious leaders (Azia, Nyembezi, Carelse & Mukumbang 2023:6). This showed the knowledge gaps with religious leaders that need capacity building for religious leaders to support patients taking their medication while praying and taking other religious activities, which do not prevent them from using ART drugs.

8.2.1.2 Benefits and challenges related to same-day ART initiation

The participants outlined the primary benefits associated with initiating ART on the same-day. They highlighted the advantages of same-day ART initiation in relation to health outcomes, treatment expenses, and the decrease in both mortality and morbidity rates. A study conducted in Canada entitled "*Early bird gets the worm: Benefits and future directions with early antiretroviral therapy initiation in primary HIV infection"* revealed that the initiation of early ART is instrumental in protecting immune cells, HIV control, and preventing other opportunistic infections (Chen et al 2018:780).

Furthermore, same-day ART initiation offers two significant advantages. Firstly, patients who begin ART on the same-day can experience clinical benefits such as viral load suppression. The benefit of initiating same-day ART regarding viral suppression was shown, with the percentages of patients with complete viral suppression 12 months after

ART initiation being similar (98% in rapid ART initiation and 97% in deferred ART initiation) (Langwenya et al 2018:3).

Moreover, same-day ART initiation provides a dual benefit by reducing HIV transmission and mitigating the incidence of morbidity and mortality resulting from opportunistic infections. A systematic review conducted on the benefits of same-day ART concurs with this study, and indicates that rapid ART could potentially lessen HIV-related mortality and morbidity, while also inhibiting HIV viral load, as shown in several observational studies and randomised trials (Mateo-Urdiales et al 2019:18). In general, findings showed that same-day ART initiation has benefits for patients and the community as it reduces mortality and morbidity.

Regarding challenges related to same-day ART, the findings showed that same-day ART initiation has disadvantages, including lost to follow-up and poor adherence to medication. Findings in northern Ethiopia concerning the efficacy of same-day antiretroviral therapy initiation in HIV retention outcomes found that same-day ART initiators had nearly a threefold higher risk of LTFU from HIV care than non-same-day ART-initiated patients (Ahmed et al 2020:8). It should be noted that same-day ART therapy should be initiated with intensive counselling to reduce the disadvantage.

8.2.2 Phase 2: Quantitative approach

Phase 2 was quantitative, consonant with the purpose of the study articulated in Section 1.4.2, namely: the evaluation of same-day ART initiation status regarding retention of patients in HIV care and to examine same-day ART initiation regarding viral suppression. During this phase, a cross-sectional study was conducted by means of document analysis. Data were collected from the smart care databases of healthcare facilities, utilising checklists as the primary tools for data collection. The results from Phase 2 showed that the overall retention rate was 59%, with viral suppression rates at 6, 12, and 24 months were 93%, 95%, and 86%, respectively, indicating progress towards the global target of 95% by 2030. These results support the impact of same-day ART initiation in achieving viral suppression (refer to Chapter 6).

8.2.2.1 Same-day ART initiation status regarding retention of patients in HIV care at the healthcare facility level in Ethiopia

The status of same-day ART initiation concerning patient retention in HIV care at the healthcare facility level in Ethiopia is a critical aspect of HIV care delivery. Since Ethiopia began implementing same-day ART initiation in October 2017, there has been a need to assess its impact on patient retention within healthcare facilities (Federal Ministry of Health, Ethiopia 2018:1). This study revealed an overall retention rate of 59%. This result is low compared to the global target of 95%. A concurrent study conducted in KwaZulu-Natal, South Africa, on the efficacy of same-day antiretroviral therapy initiation on retention in care and clinical outcomes revealed that 70.79% (n=189) were retained in HIV care among those started on same-day ART (Govere et al 2023:3). These results indicated that same-day ART initiation negatively impacts patient retention in HIV care. In contradistinction, a Thailand study on the effectiveness of the timing of antiretroviral therapy initiation on retention of care, viral load suppression, and mortality in people living with HIV demonstrated that individuals in early ART initiation showed that retention in HIV care at 12 months is 88.8% compared to others, whose retention was 80.5% (Eamsakulrat & Kiertiburanakul 2022:4).

Therefore, assessing the retention status of patients initiated on same-day ART is crucial for understanding the effectiveness of this approach in Ethiopia. Such assessments typically involve longitudinal studies tracking patient outcomes over time, including retention rates at various intervals post-ART initiation. By monitoring and evaluating same-day ART initiation status regarding patient retention, healthcare facilities in Ethiopia can identify gaps in care delivery and implement targeted interventions to improve outcomes. These results showed that ensuring high retention rates among patients initiated on same-day ART is essential for achieving optimal health outcomes and reducing the burden of HIV in Ethiopia.

8.2.2.2 Same-day ART initiation status regarding viral suppression at the healthcare facility level in Ethiopia

Viral suppression is a key indicator of the success of treatment, and is essential in reducing HIV transmission, improving patient health, and prolonging life expectancy. Same-day ART initiation aims to expedite the start of treatment, potentially leading to faster viral suppression and improved clinical outcomes. The current study' results showed that most patients achieved viral suppression; at the 6-month mark, 93% (n=126) of patients had attained viral suppression. By the 12-month milestone, this figure had increased to 95% (n=77) of patients. Furthermore, at the 24-month point, 86% (n=6) of patients demonstrated viral suppression. A concurred study was conducted in Sub-Saharan Africa on same-day ART initiation as a predictor of lost to follow-up and viral suppression among people with HIV revealed that 88.1% (n=10487) were virally suppressed (Ross et al 2023:44). This clearly showed that same-day ART positivity impacts viral suppression.

Monitoring viral suppression status allows healthcare providers to identify patients who may require additional support or intervention to achieve optimal treatment outcomes. Additionally, tracking viral suppression rates over time provides valuable data for evaluating the efficacy of same-day ART initiation in real-world healthcare settings and guiding quality improvement efforts. Ensuring high rates of viral suppression among patients initiated on same-day ART is necessary for achieving the goals and efforts associated with treating and preventing HIV in Ethiopia, including reducing HIV transmission, improving patient health outcomes, and ultimately ending the HIV epidemic in order to achieve 2030 targets.

8.2.3 Development of strategies and the validation of the developed strategies

Phase 3 was premised on the development of strategies and their validation. The strategies were developed for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms. These strategies were developed on the basis of the Phase 1 findings and integration of the Phase 2 results, a comprehensive literature

review, the study's theoretical framework, and a logical reasoning approach (refer to Chapter 7). A summary of strategy development is presented below.

8.3 DEVELOPMENT OF STRATEGIES

The development of strategies is aimed at improving same-day ART initiation, tracking individuals lost to follow-up, and implementing mechanisms for viral suppression, all aimed at achieving the 2030 global targets. Furthermore, the main aim of the developed strategies was to optimise same-day ART initiation, enhance the retention of patients initiated on same-day ART within the HIV care system, and improve mechanisms for monitoring viral suppression in healthcare facilities across Ethiopia.

The development of the strategies was guided by the qualitative findings through individual in-depth cell phone interviews (refer to Chapter 5 for details), quantitative results in the form of document analysis (refer to Chapter 6), the integration of Phase 1 and Phase 2, the application of a theoretical framework, logical reasoning, and a comprehensive review of pertinent literature. Fifteen (15) final strategies were formulated and validated by health experts using the Modified Delphi technique. Two rounds were reached and validated to develop the final strategies. The developed strategies will be implemented at different health system levels in Ethiopia, which include the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, and community levels. The particulars of implementing these strategies, including the targeted levels, were presented in Chapter 7.

8.3.1 FINAL DEVELOPED STRATEGIES

Finally, fifteen (15) final strategies were formulated and validated by health experts using the Modified Delphi technique in two rounds. The final developed and validated strategies are presented in Table 8.1 below (for details on each strategy, refer to Chapter 7).

Table 8.1: Final developed and validated strategies

S. No	Final Strategies
1	Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision
2	Strategy 2: Ensure supplies for ARV and other opportunistic infections
3	Strategy 3: Enhanced information and education provision
4	Strategy 4: Monitoring and evaluation of performance
5	Strategy 5: Reduction of lost to follow-up
6	Strategy 6: Enhance the capacity of case managers and adherence supporters
7	Strategy 7: Central databases and digital systems development
8	Strategy 8: Financial and food assistance for patients
9	Strategy 9: Awareness campaigns for the community and patients to optimise disclosure
10	Strategy 10: Capacity building for community and religious leaders
11	Strategy 11: Creating automated reminding system through SMS
12	Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level
13	Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building.
14	Strategy 14: Improving healthcare providers counselling on viral load performance
15	Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision

8.4 CONCLUSIONS

This chapter presented the integrated summary of this study, strategies development, and validation that aim to enhance same-day ART initiation lost to follow-up tracing and viral suppression monitoring approaches. A summary of the integrated findings was presented in accordance with the three phases of the study. The strategies themselves were developed according to the integration of qualitative findings and quantitative results, integration, theoretical framework, logical reasoning, and literature reviews. The strategies have three thematic areas and 15 strategic key areas. The developed strategies were presented with a description of actions and level implantation. The study recommendation, contribution, and limitations of the study conclusion are presented below.

8.5 RECOMMENDATIONS

The study's recommendations advocate for a comprehensive approach to same-day ART initiation, centred on enhanced counselling, capacity building, and education. Multiple in-

depth counselling sessions, facilitated by various healthcare providers, are proposed to address patient concerns and increase awareness, thereby promoting treatment adherence. Concurrently, improving monitoring and evaluation mechanisms is identified as crucial to overcome existing challenges and assess treatment outcomes effectively, specifically viral load performance and lost to follow-up. To address socio-economic concerns, the study suggests implementing interventions that include financial or food assistance, particularly during the initial stages of same-day ART initiation for the first six months. Further recommendations included: enhancing patient-centred care through one provider at least for the first six months, as well as continuous on-the-job capacity building for case managers and adherence supporters, including healthcare providers.

Strategies for reducing lost to follow-up cases involve documenting demographic information on patients' enrolments and implementing targeted tracing mechanisms. Collaborative community awareness campaigns are recommended to emphasise the importance of adherence and combat stigma. These recommendations collectively underscore a multifaceted and patient-centric approach to optimising the implementation of same-day ART initiation, aiming for sustained improvements in HIV care outcomes to achieve the 2030 global targets. The developed strategies have the potential to be effectively implemented to address current challenges in same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms. Collaboration between the Ministry of Health and its stakeholders will be crucial for successful implementation.

The researcher would like to forward recommendations for future researchers, the Ministry of Health, regional health bureaus, town/zonal health departments, healthcare facility heads, healthcare providers, patients, and the community as follows:

8.5.1 Recommendations for Ministry of Health

- **Policy refinement:** The Ministry of Health should consider refining and updating HIV policies related to same-day ART initiation in order to ensure alignment with the latest evidence-based practices and advancements in HIV care. This includes incorporating feedback from healthcare providers and patients to enhance the

relevance and effectiveness of policies.

- **Training and capacity-building activities:** Implement comprehensive training programmes, especially for case managers and adherence supporters, including other healthcare providers, emphasising the principles and practices of same-day ART initiation. Continuous capacity building should be prioritised to keep healthcare professionals up-to-date on the latest developments in HIV care, counselling techniques, and adherence support.

- **Community engagement and awareness:** Launch targeted community engagement initiatives and awareness campaigns to educate the public about the benefits of same-day ART initiation and reduce the stigma associated with HIV. Collaboration with community leaders, religious leaders, and non-governmental organisations can amplify the impact of campaigns on awareness creation.

- **Infrastructure investment:** Allocate infrastructural resources for the improvement of healthcare facilities, especially in counselling areas. This includes the establishment of a well-equipped healthcare facility counselling unit that is comfortable and confidential for patients seeking same-day ART initiation services for confidential counselling.

- **Socio-economic support programmes:** Introduce and strengthen socio-economic support programmes that address financial and food-related challenges faced by patients receiving same-day ART initiation. The Ministry of Health should collaborate with relevant stakeholders and non-governmental organisations to enhance the effectiveness and reach of these support initiatives for patients who need assistance.

- **Monitoring and evaluation enhancement:** Invest in upgrading monitoring and evaluation mechanisms specific to same-day ART initiation to address the identified challenges, especially for viral load testing and lost to follow-up tracing. This includes technological solutions for better data tracking, regular assessment

of programme effectiveness, and the incorporation of patient feedback into evaluation processes.

- **Research collaboration:** Enhance collaboration with research institutions, academic institutions, and non-governmental organisations to conduct ongoing research on same-day ART initiation implementation, outcomes, and associated challenges. This collaborative effort will contribute to evidence-based decision-making and the continuous improvement of HIV care strategies in order to achieve the global SDG 2030 targets. Further, this will support the MoH in policy formulation related to the prevention, care, and treatment of HIV.

- **Regular review and adaptation:** Establish a framework for regular reviews of same-day ART initiation programmes, policies, and outcomes. This adaptive approach will enable the Ministry of Health to respond promptly to emerging challenges, incorporate best practices, and continually optimise the delivery of HIV care services.

- **Median engagement:** To enhance same-day ART initiation, it is recommended to elevate national media engagement as a tool for HIV advocacy. This involvement can significantly enhance efforts to improve and promote immediate access to antiretroviral therapy and minimise stigma and description through awareness creation.

- **Effective use of technology:** Create technology for patient follow-up and education in collaboration with partners. Utilise mobile applications, telehealth platforms, or SMS reminders to support adherence, provide information, and maintain regular contact with patients receiving same-day ART initiation. This will support in reducing the number of patients lost to follow-up on HIV care and treatment.

8.5.2 Recommendations for regional health bureaus

- **Localised implementation strategies:** Modify the implementation of same-day ART initiation to the specific requirements and dynamics of each region. Regional Health Bureaus should develop strategies that consider local socio-cultural factors, healthcare infrastructure, and population demographics.

- **Healthcare provider training:** Prioritise training programmes for healthcare providers within the region to ensure they are well-equipped with the knowledge and skills required for successful same-day ART initiation implementation. Continuous training sessions and workshops should be conducted to keep providers updated on best practices, especially case managers, adherence supporters, and laboratory personnel.

- **Community sensitisation programmes:** Launch community sensitisation programmes to increase awareness and understanding of same-day ART initiation among the local population. Engage with community leaders, religious leaders, HIV-positive associations, and non-organisations to disseminate information, address misconceptions, and reduce the stigma associated with HIV.

- **Collaboration with local NGOs:** Enhance collaborations with local non-governmental organisations in order to strengthen support services for patients receiving same-day ART initiation. Local NGOs and civil society can play a crucial role in providing psychosocial support, counselling, and community-based interventions.

- **Data management systems:** Invest in robust data management systems at the regional level to track and monitor same-day ART initiation outcomes effectively. This includes implementing central database development, ensuring data privacy, and regularly analysing data to identify trends and areas for improvement by reducing data duplication through a digital identification system.

- **Resource mobilisation and allocation:** Mobilise and allocate resources strategies based on the specific needs of each zone and town health office. This includes financial resources, healthcare infrastructure improvements, and the provision of necessary medical supplies and equipment to facilitate same-day ART initiation services.

- **Peer support networks**: Establish peer support networks within the region to facilitate interactions among individuals receiving same-day ART initiation. Peer support can play a crucial role in promoting treatment adherence, sharing experiences, and enhancing a sense of community among patients and healthcare providers.

- **Local research initiatives**: Encourage and support local research initiatives focused on same-day ART initiation outcomes and challenges within the region. Regional Health Bureaus should collaborate with academic institutions and researchers to generate region-specific evidence for informed decision-making.

- **Regular regional forums**: Facilitate regular forums or meetings where healthcare providers, community representatives, and stakeholders can discuss challenges, share best practices, and collectively address issues related to specific same-day ART initiation implementation. These forums can foster a collaborative and learning-oriented environment.

- **Public-private partnerships**: Explore opportunities for public-private partnerships to enhance the reach and impact of same-day ART initiation programs. Collaboration with private healthcare facility providers, businesses, and charitable organisations can supplement resources and expertise.

- **Crisis response planning**: Develop crisis response plans to address unforeseen challenges or emergencies related to same-day ART initiation, especially during pandemics like COVID-19, which highly affect HIV care and treatment. Institutionalising proactive strategies will enable regional health bureaus to

respond effectively to sudden developments.

8.5.3 Recommendations for Town/Zonal health office

- **Localised awareness campaigns:** Design and implement targeted awareness campaigns within the town or zonal area to educate residents about the benefits and procedures of same-day ART initiation. Utilise local media, community events, and town/zonal level meetings for effective dissemination of information on the same-day ART initiation benefit.

- **Training and sensitisation of healthcare providers:** Conduct specialised training sessions for adherence supporters and case managers, including healthcare providers in town or zonal health facilities, focusing on same-day ART initiation protocols, counselling techniques, and adherence support strategies. Sensitise healthcare providers to the unique challenges and opportunities associated with same-day ART initiation.

- **Community-based testing and counselling:** Strengthen community-based HIV testing and counselling services to ensure early detection of HIV-positive individuals. Encourage regular testing events in collaboration with community and religious leaders and local organisations to increase accessibility and awareness about HIV, which are vital to the reduction of stigma and discrimination.

- **Establishment of HIV care support groups:** Facilitate the formation of local HIV care support groups for individuals receiving same-day ART initiation. These groups can serve as platforms for peer support, sharing experiences, and addressing common challenges, thereby enhancing treatment adherence and mental well-being, which will enhance HIV awareness creation and reduce stigma and discrimination.

- **Local resource mobilisation:** Explore avenues for local resource mobilisation to supplement financial and mother support for same-day ART initiation programmes

based on need for those who require special support. collaborate with local businesses, the private sector, HIV mainstreaming, and community organisations to enhance the sustainability of these initiatives.

- **Regular community forums:** Organise regular forums or town- or zonal-level meetings to engage with the local community and religious leaders, gather feedback, and address concerns related to same-day ART initiation. Creating an open dialogue can enhance community ownership and ensure that programmes are responsive to local needs.

- **Monitoring and evaluation at the local level:** Establish robust monitoring and evaluation mechanisms at the town or zonal level to track the progress of same-day ART initiation programs. Regularly assess outcomes, identify bottlenecks, and adapt strategies accordingly to enhance programme efficiency.

- **Community education programmes:** Implement community education programmes that transcend the clinical aspects of same-day ART initiation, addressing social determinants, stigma reduction, and overall well-being. These programmes could potentially contribute to a more comprehensive understanding of HIV care in the community.

- **Crisis response planning:** Develop contingency plans and response strategies for unforeseen challenges or emergencies related to same-day ART initiation within the town or zonal context. Preparedness is crucial for addressing unexpected situations promptly and effectively.

8.5.4 Recommendations for healthcare facility head

- **Leadership training on same-day ART initiation implementation:** Provide leadership training for healthcare facility heads on the details of same-day ART initiation, emphasising effective management strategies, staff engagement, and programme integration. This will allow leadership engagement in same-day ART

initiation-specific monitoring to achieve the desired goals.

- **Resource allocation and budgeting:** Prioritise budget allocation for same-day ART initiation services within healthcare facilities, ensuring adequate resources for staff training, infrastructure enhancement, and the provision of necessary medical supplies. Allocate resources based on patient volume and programme needs through mainstreaming to enhance same-day ART initiation uptake.

- **Regular staff training programmes:** Organise regular training programmes for case managers and adherence supporters at healthcare facility staff involved in same-day ART initiation implementation. These programmes should cover updated guidelines, counselling techniques, and adherence support strategies to enhance the competence of healthcare providers.

- **Staffing and workload considerations:** Evaluate staffing levels and workload within the healthcare facility to ensure that there are adequate healthcare providers to manage same-day ART initiation services effectively. Consider redistributing tasks and responsibilities to optimise the efficiency of the healthcare team.

- **Quality assurance and monitoring systems:** Establish robust quality assurance and monitoring systems for same-day ART initiation services. Conduct regular audits, evaluations, and assessments to identify areas for improvement, maintain service quality, and ensure adherence to established protocols.

- **Patient feedback mechanisms:** Implement mechanisms for collecting feedback from patients receiving same-day ART initiation. Use patient experiences to identify areas for improvement, address concerns, and enhance the overall patient-centred approach to HIV care.

- **Collaboration with community stakeholders**: Advance collaboration with local community stakeholders, including NGOs, community leaders, and support groups. Engage in joint initiatives to address community-specific challenges,

reduce stigma, and improve community understanding of same-day ART initiation.

- **Continuous advocacy for same-day ART initiation:** Advocate for the importance of same-day ART initiation within the healthcare facility and in broader healthcare networks. Communicate the benefits, challenges, and successes of same-day ART initiation to gather support from staff, healthcare facility administrators, and external stakeholders for further improvement in the implementation.

- **Regular interdepartmental communication:** Facilitate regular communication and collaboration between different service delivery points within the healthcare facility to enhance same-day ART initiation uptake. Enhance a multidisciplinary approach to patient care, with continuous coordination between same-day ART initiation services (ART clinic) and other service delivery points.

- **Emergency response preparedness:** Develop emergency response plans specific to same-day ART initiation implementation, especially during pandemics such as COVID-19, which affect HIV care and treatment. Anticipate potential challenges and outline strategies to address emergencies promptly, and ensuring continuity of care for patients enrolled in same-day ART initiation.

8.5.5 Recommendations for healthcare providers

- **Cultural competency training:** Healthcare providers should undergo cultural competency training to understand and address the diverse needs of patients, considering factors such as religious beliefs, socio-economic status, and community-specific challenges related to HIV care.

- **Regular continuing education:** Healthcare providers should have engaged in regular continuing education programmes to stay updated on evolving guidelines, treatment protocols, and advancements in HIV care. Stay informed about best practices in same-day ART initiation implementation to provide optimal patient

care. This can be online continuous professional development (CPD) and on-the-job training provided by regional health bureaus, zonal health departments, and town health offices.

- **Patient-centred counselling:** Healthcare providers should have adopted a patient-centred approach to counselling, ensuring that discussions about same-day ART initiation are tailored to individual patient needs, concerns, and readiness. Provide precise and comprehensive information in order to facilitate informed decision-making.

- **Collaboration with adherence supporters:** Professional healthcare providers working on same-day ART initiation should collaborate effectively with adherence supporters, case managers, and other healthcare team members involved in same-day ART initiation. Maintain open communication channels to address patient challenges and enhance the overall support system.

- **Stigma reduction initiatives:** Actively participate in initiatives aimed at reducing the stigma associated with HIV and same-day ART initiation. Educate colleagues, community members, and patients to create a supportive and inclusive healthcare environment for patients starting on same-day ART.

- **Regular interdisciplinary meetings:** Participate in regular interdisciplinary meetings to discuss patient cases, share experiences, and collaboratively address challenges related to same-day ART initiation. Foster a team-oriented approach to enhance the quality of care provided, challenges encountered, and opportunities to be used.

- **Culturally competent communication:** Ensure culturally competent communication with patients, considering language preferences, cultural norms, and literacy levels. Facilitate an environment that encourages open dialogue and patient engagement during same-day ART initiation and follow-up counselling.

8.5.6 Recommendations for patients and community

- **Education and awareness initiatives:** Patients and community leaders, including religious leaders, should actively engage in community-based education and awareness initiatives on HIV and same-day ART initiation. Promote accurate information and raise awareness about the benefits of early treatment initiation.

- **Community support groups:** Establish and participate in community support groups for individuals living with HIV. These groups can serve as platforms for sharing experiences, providing emotional support, and addressing common challenges associated with same-day ART initiation. This can include health extension workers, community health volunteers, religious leaders, and community leaders in a manner that maintains confidentiality and privacy.

- **Reducing stigma and discrimination:** Patients and people living with HIV associations (PLW) should take proactive measures to reduce the discrimination and stigma associated with HIV. Enhance a supportive community environment in which individuals feel comfortable seeking same-day ART initiation and openly discussing their HIV status without fear of judgement.

- **Collaboration with healthcare providers:** People living with HIV associations (PLW) should actively participate to enhance collaborative relationships with healthcare providers involved in same-day ART initiation. Actively participate in counselling sessions, adhere to prescribed treatment plans, and communicate openly with healthcare professionals to address any concerns or challenges.

- **Community mobilisation for testing campaigns:** People living with HIV associations (PLW), the community, and religious leaders should participate in mobilising community members to participate in HIV testing campaigns and outreach programs. Strengthen community-wide efforts to identify individuals living with HIV and facilitate their timely enrolment in same-day ART initiation.

8.5.7 Recommendations for future research

Future research should prioritise conducting longitudinal studies to provide insights into the sustained outcomes and challenges that have a bearing on same-day ART initiation. Expanding the scope to include multi-centre trials would enable a more comprehensive understanding of regional variations and diverse population dynamics. An imperative aspect of future investigations should be investigating the perspectives and challenges faced by healthcare providers during same-day ART initiation implementation.

Exploring the specific impacts of socio-economic interventions on same-day ART initiation outcomes can provide targeted strategies to enhance financial and food assistance programmes. Comparative studies between same-day ART initiation and traditional initiation methods are essential to determining the relative advantages and disadvantages of each approach. Additionally, research should focus on the role of technology, patient satisfaction, and quality of life post-same-day ART initiation, considering psychosocial factors and patient-reported outcomes. Investigating alternative medication formats that include injectable drugs warrants attention for a more comprehensive understanding of their feasibility and impact on adherence.

Furthermore, assessing the impact of community-based interventions in reducing stigma and enhancing adherence to same-day ART initiation will contribute to designing tailored support programmes. These research recommendations collectively aim to advance the understanding and implementation of same-day ART initiation, ultimately improving HIV care practices and outcomes in order to achieve the 2030 global targets of 95%. The current study did not include pregnant women in its clinical records, nor did it encompass children. Future research should aim to address these gaps to ensure comprehensiveness and generalizability to the entire population, providing opportunities for pregnant women and children to be included.

8.6 CONTRIBUTION OF THE STUDY

This study significantly adds value to the understanding of same-day ART initiation, lost-

follow-up, and viral suppression monitoring-related benefits, challenges, and implications for HIV care in Ethiopia at the healthcare facility level. By investigating the advantages and challenges linked to same-day ART initiation, the study showed that measures should be involved in its implementation through strategies development. Crucially, the identification of barriers, including patient reluctance, adherence issues, and informational gaps, informs targeted interventions to optimise same-day ART initiation implementation. The study recognises the socio-economic status of patients as an important factor influencing the benefit of same-day ART initiation, emphasising the need for a holistic, patient-centred approach.

The practical recommendations arising from the findings and results, spanning enhanced counselling strategies, community engagement, stigma reduction, and socio-economic considerations, provide actionable insights for healthcare providers and policymakers. By incorporating the experiences and perspectives of HIV-positive patients, the study enriches understanding at an individual level, enhancing a more holistic comprehension of same-day ART initiation implications. Additionally, the study lays the foundation for future research initiatives, contributing to evidence-based practices that can refine existing same-day ART initiation and HIV care strategies, ensuring optimal treatment outcomes and patient well-being to achieve the global 2030 targets.

8.7 LIMITATIONS OF THE STUDY

The study limitations were largely induced by the COVID-19 pandemic's level 4 regulations and their adverse restrictions on face-to-face data collection. The retrospective nature of the study introduces the possibility of recall bias, as patients may not accurately recall details surrounding same-day ART initiation and lost to follow-up events. The reliance on self-reported data further confounds the study, potentially subjecting responses to social desirability bias. As data was collected from the smart care database, incompleteness regarding viral load test performance was another challenge, and it was difficult to get patient folders from the medical recording unit in such a case.

External factors, such as strategies changes during the study period, could impact the

observed outcomes. One of these factors is the extended duration of the research period. During this time, there may have been changes in global or national policies or HIV implementation guidelines, potentially introducing biases or discrepancies in the findings. The study's cross-sectional design hinders the tracking of longitudinal changes in patient outcomes. Lastly, the study did not include religious leaders, community-level people living with HIV associations due to the COVID-19 pandemic on level 4, and restricted movement during the study. Acknowledging these limitations is pivotal for understanding and guiding future research to refine the researcher's findings and knowledge of same-day ART initiation and associated challenges.

8.8 CONCLUDING REMARKS

The study’s purpose was to evaluate same-day ART initiation regarding viral suppression and retention in HIV care at selected healthcare facilities in Ethiopia. The researcher intended to develop strategies for same-day ART initiation, tracing HIV patients lost to follow-up, and viral suppression monitoring mechanisms. Literature was reviewed on same-day ART initiation benefit, challenges, HIV epidemiology, international countries, Ethiopia, and South Africa, including West and North African countries. The theoretical framework of the health belief model (HBM) was applied to support the study and its development of strategies. An exploratory sequential mixed method design was used with three phases. Accordingly, the Phase 1 and Phase 2 results were integrated in order to facilitate the strategies development. The combination of the two phases occurred at the results level after each phase of separate analysis for strategies development. Furthermore, logical reasoning was applied, which included induction and deduction reasoning applied in strategy development.

In conclusion, the study has revealed an important landscape with both promises and challenges within same-day ART initiation in the era of HIV prevention, care, and treatment. The benefits of same-day ART initiation, including viral load suppression, underscore its significance in improving patient outcomes. However, the implementation of same-day ART initiation is intricately woven with complexities that demand careful consideration as it may lead to lost to follow-up due to inadequate adherence.

Challenges related to patients' reluctance due to disclosure concerns, issues of poor adherence to medical instructions, and gaps in comprehensive information on HIV and ART have surfaced as crucial deficiencies. Furthermore, the socio-economic profiles of patients have emerged as an instrumental factor influencing the efficacy of same-day ART initiation, highlighting the need for a holistic approach to address both medical and socio-economic aspects.

The multifaceted nature of these findings and results underscores the necessity for tailored interventions and a patient-centred approach in the application of same-day ART initiation. Initiatives focused on enhancing counselling, providing comprehensive education, and addressing socio-economic barriers are imperative. Additionally, efforts to reduce stigma, both within the healthcare system and the community, are paramount to the success of same-day ART initiation.

The researcher’s navigation of the future of HIV prevention, care, and treatment, bridging the gap between the potential advantages of same-day ART initiation and the existing challenges, required a collaborative effort from the Federal Ministry of Health, regional health bureaus, zonal health departments, town health offices, healthcare facilities, healthcare providers, community stakeholders, and policymakers. By implementing patient-centric strategies, enhancing community support, and addressing socio-economic disparities, it is possible to pave the way for a more effective and inclusive implementation of same-day ART initiation. The journey towards optimal HIV care continues, and the insights gained from this exploration will undoubtedly contribute to shaping more informed, responsive, and patient-oriented approaches in the ongoing battle against HIV to achieve the Sustainable Development Goals’ 2030 global targets.

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ANNEXURES

ANNEXURE 1: UNISA ETHICAL CLEARANCE CERTIFICATE

UNISA university of south africa

UNISA HEALTH STUDIES HIGHER DEGREES ETHICS REVIEW COMMITTEE

Date 25 May 2020

Dear Kidanu Hurisa Chachu

NHREC Registration # : REC-012714-039
ERC Reference # : **HSHDC/977/2020**
Name : Kidanu Hurisa Chachu
Student #: 67120369
Staff #:

Decision: Ethics Approval from 25 May 2020 to 25 May 2025

Researcher(s): Name Kidanu Hurisa Chachu
Address
E-mail address 67120369@mylife.unisa.ac.za, telephone # +251922981258

Supervisor (s): Name Prof KA Maboe
E-mail address maboeka@unisa.ac.za, telephone # 012 429 2393

Working title of research:

Same-Day Antiretroviral Therapy Initiation Status Associated With Viral Suppression and Retention in HIV/Aids Care in Ethiopia

Qualification: PhD

Thank you for the application for research ethics clearance by the Unisa Health Studies Higher Degrees Ethics Review Committee for the above mentioned research. Ethics approval is granted for five (5) years.

*The **low risk application** was **reviewed** by a Sub-committee of URERC on 7 April 2020 in compliance with the Unisa Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment. The decision will be tabled at the next Committee meeting on 2 June 2020 for ratification.*

The proposed research may now commence with the provisions that:

1. The researcher will ensure that the research project adheres to the relevant guidelines set out in the Unisa Covid-19 position statement on research ethics

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

attached.

2. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.
3. Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study should be communicated in writing to the Health Studies Research Ethics Committee HSREC@unisa.ac.za.
4. The researcher(s) will conduct the study according to the methods and procedures set out in the approved application.
5. Any changes that can affect the study-related risks for the research participants, particularly in terms of assurances made with regards to the protection of participants' privacy and the confidentiality of the data, should be reported to the Committee in writing, accompanied by a progress report.
6. The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study. Adherence to the following South African legislation is important, if applicable: Protection of Personal Information Act, no 4 of 2013; Children's act no 38 of 2005 and the National Health Act, no 61 of 2003.
7. Only de-identified research data may be used for secondary research purposes in future on condition that the research objectives are similar to those of the original research. Secondary use of identifiable human research data require additional ethics clearance.
8. No field work activities may continue after the expiry date (25 May 2025). Submission of a completed research ethics progress report will constitute an application for renewal of Ethics Research Committee approval.

Note:

The reference number ***HSHDC/977/2020*** *should be clearly indicated on all forms of communication with the intended research participants, as well as with the Committee.*

Yours sincerely,

Signatures :

PP

Chair of HSREC : Prof JM Mathibe-Neke
E-mail: mathijm@unisa.ac.za
Tel: (012) 429-6443

Executive Dean : Prof K Masemola
E-mail: masemk@unisa.ac.za
Tel: (012) 429-6825

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

ANNEXURE 2: UNISA REGIONAL LEARNING CENTER SUPPORT LETTER

UNISA | university of south africa

16 June, 2020

UNISA-ET/KA/ST/29/16-06-20

Oromia Regional Health Bureau

Addis Ababa

Dear Madam/Sir,

The University of South Africa (UNISA) extends warm greetings. By this letter, we want to confirm that Mr. Kidanu Hurisa Chachu (student number: 67120369) is a PhD student in the Department of Health Studies at UNISA. Currently, he is at the stage of data collection on his doctoral research entitled "***Same-Day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/Aids Care in Ethiopia***".

This is therefore to kindly request you to assist the student in any way that you can. We would like to thank you in advance for all the assistance that you will provide to the student. Attached, please find the ethical clearance that he has received from the Department of Health Studies.

Sincerely,

Dr. Tsige GebreMeskel Aberra

Director

UNISA REGIONAL LEARNING CENTER
PO BOX 13836 ADDIS ABABA ETHIOPIA
TEL +251-114-350141
FAX +251-114-350078
Mobile +251-114-351243
+251-912-191483

University of South Africa
Regional Learning Center
P.O. Box: 13836, Addis Ababa, Ethiopia
Telephone: +251 11 435 2244 / +251 11 435 0078
Facsimile: +251 11 435 1242/ 43/ 44
Mobile: +251 912 19 1483
www.unisa.ac.za

ANNEXURE 3: UNISA COVID-19 STATEMENT GUIDELINES

Prof T Meyiwa
P. O. Box 392, UNISA, 0003
TELE: +27 (0) 12 429 2851
EMAIL: *meyiwt@unisa.ac.za*

TO: **ALL RESEACHERS**

DATE: 09 April 2020

SUBJECT: **UNIVERSITY OF SOUTH AFRICA COVID-19 POSITION STATEMENT ON RESEARCH ETHICS**

Dear Colleagues

On 15 March 2020 President Cyril Ramaphosa addressed the nation to declare a state of national disaster, following an increase in confirmed cases of COVID-19. The evolving COVID-19 pandemic requires that research is adapted on an ongoing basis to the dynamic situation.

A responsible approach to human participant, community engaged, animal, environmental, molecular and cell research is required in the context of COVID-19. Unisa supports the continuation of research activities, where possible, guided by the following principles and activities supported by the Policy on Research Ethics:

Protection of the participant, the community, and the researcher(s) and research support staff from any risks of harm while conducting research through the implementation of clear pragmatic risk mitigation measures.

Researchers must assess the risk - benefit ratio of a research study, particularly research that requires face-to-face contact, and the collection of data in public spaces or in locations where social distancing cannot be practiced.

The respect for the participant's rights for self-determination should always be carefully considered, for example the right to decline participation or to withdraw or collectively exploring alternative ways of participation.

In the interest of participants and researchers, the consensus is that new face-to-face or studies with an inherent risk to participants and/or researchers should not be embarked upon for the duration of the lockdown period.

Although this sounds like a blanket statement, registered Unisa Health Research Ethics Review Committees would be willing to consider well-motivated applications as exceptions only. The researcher needs to provide an accompanying letter with a detailed rationale for why this research study needs to be enacted during this time.

Unisa Ethics Review Committees (ERCs) will continue to accept and review research ethics applications but will clearly indicate where the ERC does NOT wish this study to commence with immediate effect in accordance with the lockdown regulations.

No research involving face-to-face contact or research studies involving settings where it is difficult to institute social distancing or practice protective measures may continue without formal notification and approval by the ERC that granted the approval in consultation with one of Unisa's registered Health ERCs/RECs.

Where or when it is unavoidable to reduce, suspend or postpone research activities, the onus is on the principal researcher to notify the ERC that approved the research study and to provide a rationale why the research needs to continue.

The ERC must inform the Unisa Research Ethics Review Committee (URERC) of all ongoing studies that may pose a risk of harm relating to the Covid-19 pandemic. National instituted protective measures such as hand hygiene, cough etiquette, and social distancing should be implemented, and monitored at sites where these studies will continue.

Research for degree purposes: The College of Graduate Studies and the Heads: Graduate Studies and Research will negotiate processes to mitigate the possible negative fallout to student progress (both new research and research that is in progress). The COVID-19 outbreak and its ramifications are difficult to measure or predict, but the suggested time frame for this position statement to be enacted is not less than the lockdown period.

Staff, researchers and supervisors are requested to carefully monitor any further internal communications for directives and guidance on this matter. Researchers who are dependent on internal, and more so external, sources of funding and sponsorship should consider the potential risks that COVID-19 and social distancing strategies will have on project milestones and audit reporting deadlines. Where possible, researchers should engage with the funder/sponsor regarding these timeframes.

Approved research that may continue without ERC notification

- Research conducted by Unisa researchers that does not engage participants face-to-face and thus limits or does not pose the risk of COVID-19 infection may continue without ERC notification.

- Research studies that collect data online or consists of the review of records are considered of low risk in current circumstances and may continue.

- Data science research and other forms of research that does not require face-to-face interaction may continue.

- Laboratory-based research where appropriate safety precautions can be taken and legitimate access to the facilities negotiated may continue (except research related to COVID-19).

The researcher/s remain responsible to ensure safety and protective measures, and to continue to minimise risk.

The onus is on the researcher to contact the relevant Ethics Review Committee if uncertain or concerned about how, or if at all, to proceed with approved research studies.

Kind regards

Prof T Meyiwa

Vice Principal: Research, Postgraduate Studies, Innovation and Commercialisation

Acknowledgement:

Stellenbosch University (SU) Faculty of Medicine and Health Sciences (FMHS) Researchers' Position Statement on Research Involving Human Participants (Clinical Research), 6 April 2020

ANNEXURE 4: REQUEST FOR PERMISSION TO CONDUCT STUDY AT PUBLIC HOSPITALS IN EAST SHEWA ZONE OF OROMIA REGIONAL STATE

Dear Sir/Madam

I, **Kidanu Hurisa Chachu (Student Number: 67120369),** am doing research under the supervision of Professor K.A. Maboe, a senior academic in the Department of Health Studies at the University of South Africa towards a Doctor of Philosophy (PhD) in Public Health degree. We cordially request for your permission to conduct our study entitled: "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA"

The purpose of this study is to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia. The findings will bear no direct benefit that would be gained by participating in this study. However, the results of this study can contribute to the development of ART initiation, viral suppression monitoring and retention in HIV/AIDS care.

I have attached the UNISA COVID-19 statement with an Ethical Clearance letter, as well as a letter of support from UNISA Regional Learning Center.

Should you have concerns about the way in which the research has been conducted, you may contact:
Supervisor: Prof KA Maboe
Tel: +2712 429 2393
E-mail: maboeka@unisa.ac.za.

Prof J.M. Mathibe-Neke (Research Ethics Committee Chair)
Department of Health Studies
University of South Africa
Tel: +27(0)12 429 6443
Email: HSREC@unisa.ac.za

Your positive response is highly appreciated.
Yours faithfully

Signed: 

Kidanu Hurisa Chachu

ANNEXURE 5: PERMISSION TO CONDUCT STUDY FROM ORHB

Biiroo Eegumsa Fayyaa Oromiyaa
Oromia Health Bureau
Saarbet (Calcalii) - Finfinnee

የኦሮሚያ ጤና ጥበቃ ቢሮ
ሳርቤት(ጨልጨሊ) - ፊንፊኔ

Lakk/Ref.NO BEFO/HBO EH/30079
Guyyaa/Date 19/10/2012

Waaj/Eeg/Fay/Magaalaa Adaamaa tiif

Koolleejjii Fayyaa Hospitaala Adaamaa tiif

Waaj/Eeg/Fay/Magaalaa Bishooftuu tiif

Hospitaala Waliigala Bishooftuu tiif

Bakka jirtanitti

Dhimmi: Xalayaa Deeggarsaa ilaala

Akkuma beekamu biiroon keenya ogeeyyii, dhaabbilee akkasumas namoota qorannoo gaggeessuuf piroppoozaala dhiyeeffatan pirooppoozaala isaanii madaaluun akkasumas iddoo biraatti ilaalchisanii fudhatama argate (Approved) dhiyaateef, pirooppoozaala isaanii ilaaludhaan waraqaa ragaa ni kenna. Haaluma kanaan mata duree **"Same-day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS care in Ethiopia"** jedhu irratti **"Obbo Kidaanuu Hurrisaa Caaccuu"** dhaabbilee fayyaa magaala fi hospitaalaa keessan irratti qorannoo gaggeessuuf pirooppozaalii isaani koree **"Health Research Ethical Review Committee"** biiroo keenyatti dhiyeeffatanii jiru.

Haaluma kanaan koreen **"Health Research Ethical Review Committee"** biiroo keenyaa pirooppoozala kana ilaaluun mirkaneessee qorannoon kuni akka hojii irra oolu murteessee jira. Waan kana ta'eef hojii qorannoo kana irratti deeggarsa barbaachisaa ta'e akka gootaniif, akkasumas akka hordoftan jechaa **"Obbo Kidaanuu Hurrisaa Caaccuu"** qorannoon kuni qaacceeffamee yeroo xumuurame argannoo (firii) isaa kooppii tokko Biiroo Eegumsa Fayyaa Oromiyaatiif akka galii godhe garagalcha xalayaa kanaatiin isin beeksifna. **"Obbo Kidaanuu Hurrisaa Caaccuu"** yeroo qorannoon kuni qaacceeffamee xumuurame argannoo (firii) isaa kooppii tokko Biiroo Eegumsa Fayyaa Oromiyaatiif akkan galii godhu mallaattoo kiyyaan nan mirkaneessa.

Nagaa Wajjin

Maqaa: Kidaanuu Hurrisaa

Mallattoo:

Guyyaa: 16/10/2012

Bilbila: 0922981258

G/G

- Obbo Kidaanuu Hurrisaatiif
  Finfinnee

Birhaanuu Qanaatee
...ssaa Garee Qorannoo
...noo Fayyaa Hawwasa

011-371-72-77 befokom2008@gmail.com or ohbhead@telecom.net.et Tin NO 0001298

ANNEXURE 6: PERMISSION TO CONDUCT STUDY FROM ORHB (TRANSLATION)

የትርጉም ሥራ አገልግሎት
Translation Service

Oromia Health Office

Sarbet (Chelcheli) – Addis Ababa

Ref. No BEFO/HBOFH/30077
Date June 26, 2020

To Adama city health station office
To Adama Hospital College

To Bishoftu City Health Office

To Bishoftu General Hospital

Where you are

Subject: To issue support letter

As it is known, our office issue certificates to experts, institutions and people who submit research proposals and approved proposals elsewhere. Based on this Ato kidanu Hurisa has presented a proposal to our office titled "Same-day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS care in Ethiopia" to the city health office and your hospital for "Health Research Ethical Review committee" committee.

Hence, "Health Research Ethical Review committee" committee has looked at the proposal and has approved the research be put to work. Therefore, we would like to inform you that you will provide the necessary support for this research. At the end of the research, Ato Kidanu Hurisa Chachu has to submit a copy of his findings to Oromia health office. At the end of the research, I will confirm with my signature that Ato Kidanu Hurisa Chachu submit a copy of his findings to Oromia health office.

With Regards,
Signed
Birhanu Kunte
Community health research
Research team expert

Signature: signed
Name: Ato Kidanu Hurisa
Date: July 08, 2020
Tel: 0922981258

Stamp
Oromia regional health Bureau Public Health Emergency Management & Health Research Directorate

Copy
- **To Ato Kidanu Hurisa**

Addis Ababa

Tel .0920-64-02-13 / 0947-39-09-76 E-mail. berryeshete19@gmail.com

ANNEXURE 7: REQUEST FOR PERMISSION TO CONDUCT PRE-TESTING AT ADAMA TOWN

Date: 26th June 2020

To Adama Town Health Office

Dear Sir/Madame

I, **Kidanu Hurisa Chachu (Student Number: 67120369)**, am doing research under the supervision of Professor K.A. Maboe, a senior academic in the Department of Health Studies at the University of South Africa towards a Doctor of Philosophy (PhD) in Public Health degree. We cordially request for your permission to conduct our study entitled: "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA"

The purpose of this study is to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia. The findings will bear no direct benefit that would be gained by participating in this study. However, the results of this study can contribute to the development of ART initiation, viral suppression monitoring and retention in HIV/AIDS care.

I have attached the UNISA COVID-19 statement with an Ethical Clearance letter, as well as a letter of support from UNISA Regional Learning Center.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor: Prof KA Maboe
Tel: +2712 429 2393
E-mail: maboeka@unisa.ac.za.

Prof J.M. Mathibe-Neke (Research Ethics Committee Chair)
Department of Health Studies
University of South Africa
Tel: +27(0)12 429 6443
Email: HSREC@unisa.ac.za

Your positive response is highly appreciated.
Yours faithfully

Signed: 

Kidanu Hurisa Chachu

ANNEXURE 8: PERMISSION TO CONDUCT PRE-TESTING FROM ADAMA TOWN HEALTH OFFICE

Waajjira Eegumsa Fayyaa *Adama City Administration*

Magaalaa Adaamaa *Health office*

የአዳማ ከተማ መስተዳደር ጤና ጥበቃ ጽ/ቤት

Lakk / Ref No: _____

Guyyaa / Date: _____

Buufata Fayyaa Magaalaa Adaamaa tiif

Buufata Fayyaa Gadaa tiif

Adaamaa

Dhimmi: Xalayaa Deeggarsaa ilaala

Obbo Kidaanuu Hurrisaa Caaccuu barataa degree 3ffaa (PhD) **Yuuniversiitii Afrikaa Kibbati (UNISA).** Qorannoo mata duree **"Same-day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS care in Ethiopia"** jedhu irratti **yaalii qorannoo duraa (Pre-testing)** Buufata fayyaa keessan keessatti gaggeessuuf pirooppozaalii isaani koree "**Health Research Ethical Review Committee**" Biiroo Eegumsa Fayyaa Oromiyaatti dhiyeeffatanii koreen kuni qorannoon kuni akka hojii irra oolu .xalayaa lakk **BEFO/HBOFH/30077** guyyaa **19/10/2012** nuuf barreesaniin nu beeksisanii jiru.

Kanaafuu hojii qorannoo kana irratti deeggarsa barbaachisaa ta'e akka gootaniif, akkasumas akka hordoftan jechaa **Obbo Kidaanuu Hurrisaa Caaccuu** qorannoon kuni qaacceeffamee yeroo xumuurame argannoo (firii) isaa kooppii tokko Waajjira Eegumsa Fayyaa Magaalaa Adaamaatiif akka galii godhe garagalcha xalayaa kanaatiin isin beeksifna. **Obbo Kidaanuu Hurrisaa Caaccuu** yeroo qorannoon kuni qaacceeffamee xumuurame argannoo (firii) isaa kooppii tokko Waajjira Eegumsa Fayyaa Magaalaa Adaamaatiif akkan galii godhu mallaattoo kiyyaan nan mirkaneessa.

Nagaa Wajjin

Maarishat La'aka (BSC,MPH)
Q/Balaa Tasaa Fayyaa Hawasaa

Mallattoo: _____

Maqaa: Kidaanuu Hurrisaa

Guyyaa: 01/11/2012

Bilbila: 0922981258

G/G

Obbo Kidaanuu Hurrisaatiif

Bakka jiranitti

ANNEXURE 9: PERMISSION TO CONDUCT PRE-TESTING FROM ADAMATOWN HEALTH OFFICE (TRANSLATION)

የትርጉም ሥራ አገልግሎት
Translation Service

Adama city Administration Health office

Ref No. WHYBrA/030/n

Date July 13, 2020

To Adama city health station office

To Geda health station

Adama

Subject: To issue support letter

I, Ato Kidanu Hurisa Chachu a student of 3rd degree (PHD) at South Africa University (UNISA) have submitted first round research proposal titled "Same-day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS care in Ethiopia" to "Health Research Ethical Review committee" Oromia health Office for doing pre-testing in your heath station. The committee has acknowledged that they have accepted the proposal on June 26, 2020 by ref no. BEFO/H8OF/30077.

Therefore, we would like to inform you that you will provide the necessary support for this research. At the end of the research, Ato Kidanu Hurisa Chachu has to submit a copy of his findings to Adama health office. At the end of the research, I will confirm with my signature that Ato Kidanu Hurisa Chachu submit a copy of his findings to Adama health office.

With Regards,

Signed

Marishet Laeke

Emergency public health administration

Stamp

Adama city Administaration

Adama health office

Signature: signed
Name: Ato Kidanu Hurisa
Date: July 08, 2020
Tel: 0922981258

Copy

- **To Ato Kidanu Hurisa**

Where you are

Tel .0920-64-02-13 / 0947-39-09-76

E-mail. berryeshete19@gmail.com

ANNEXURE 10: HEALTHCARE FACILITY A REQUEST PERMISSION TO CONDUCT PRE-TESTING

Health Facility Administration: Geda HC

Town: AdamaTown

Date: 09 July 2020

Health Facility Administration: Geda Health Center

Town: Adama

Request to conduct Pre-testing

I am Kidanu Hurisa Chachu a chief Public Health Professional, a research student pursuing a Doctor of Philosophy in Public Health at the University of South Africa. My student number is 67120369.

I hereby request permission to conduct a pre-testing study at your institution. The title of my study is "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA."

The purpose of this study will be to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia.

Data will be collected from health center clinical records of patients in smart care database started ART, healthcare provider's team working in ART clinic. Based on the results, the recommendations will be used to determine ART initiation strategy in ART clinic. Kindly refer to an Ethical clearance certificate from UNISA, UNISA COVID-19 statement and letter of support from Adama Town Health Office attached with this letter.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor:

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee: Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

Your positive response will be highly appreciated.

Yours faithfully

Kidanu Hurisa _____

ANNEXURE 11: HEALTHCARE FACILITY B REQUEST PERMISSION TO CONDUCT PRE-TESTING

Health Facility Administration: Adama Health Center

Town: AdamaTown

Date: 09 July 2020

Health Facility Administration: Adama Health Center

Town: Adama

Request to conduct Pre-testing

I am Kidanu Hurisa Chachu a chief Public Health Professional, a research student pursuing a Doctor of Philosophy in Public Health at the University of South Africa. My student number is 67120369.

I hereby request permission to conduct a pre-testing study at your institution. The title of my study is "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA."

The purpose of this study will be to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia.

Data will be collected from health center clinical records of patients in smart care database started ART, healthcare provider's team working in ART clinic. Based on the results, the recommendations will be used to determine ART initiation strategy in ART clinic. Kindly refer to an Ethical clearance certificate from UNISA, UNISA COVID-19 statement and letter of support from Adama Town Health Office attached with this letter.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor:

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee:

Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

Your positive response will be highly appreciated.

Yours faithfully

Kidanu Hurisa _____ 

ANNEXURE 12: APPROVAL TO CONDUCT PRE-TESTING FROM HEALTH FACILITY A

Buufata Eegumsa Fayyaa Adama

Magaalaa Adaamaa *Health Center*

Reference No: _____

Date: _____

To Mr. Kidanu Hurisa Chachu

Subject: Giving Permission for Data Collection

We would like to inform you that we have already accepted your request to collect data from our health Center (**Adama Health Center**) for pre-testing purpose for the fulfilment of your doctoral degree.

With Regards

CC

ART Clinic

ANNEXURE 13: APPROVAL TO CONDUCT PRE-TESTING FROM HEALTH FACILITY B

Buufata Eegumsa Fayyaa Gadaa

Geda *Health Center*

Reference No: _____

Date: _____

To Mr. Kidanu Hurisa Chachu

Subject: **Giving Permission for Data Collection**

We would like to inform you that we have already accepted your request to collect data from our health Center, **Geda Health Center** for pre-testing purpose for the fulfilment of your doctoral degree.

With Regards

Girmaa Tashoma Awaqa

Daayirektara Buufataa Eegumsaa Fayyaa Gadaa

CC

To ART Clinic

ANNEXURE 14: HEALTHCARE FACILITY 1 REQUEST FOR PERMISSION TO CONDUCT STUDY

Health Facility Administration: Adama Hospital Medical College
Town: Adama Town
Date: 02 July 2020
Health Facility Administration: Adama Hospital Medical College
Town: Adama
Request to conduct study

I am Kidanu Hurisa Chachu a chief Public Health Professional, a research student pursuing a Doctor of Philosophy in Public Health at the University of South Africa. My student number is 67120369.

I hereby request permission to conduct a study at your institution. The title of my study is "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA."

The purpose of this study will be to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia.

Data will be collected from hospital clinical records of patients in smart care database started ART, healthcare provider's team working in ART clinic. Based on the results, the recommendations will be used to determine ART initiation strategy in ART clinic. Kindly refer to an Ethical clearance certificate from UNISA, UNISA COVID-19 statement and letter of support from Oromia Regional Health Bureau attached with this letter and research proposal.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor:
Prof KA Maboe
Tel: +2712 429 2393,
email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee:
Prof JM Mathibe-Neke (Ethics Chair)
Tel: +27(0)12 429 6443
Email: HSREC@unisa.ac.za

Your positive response will be highly appreciated.

Yours faithfully
Kidanu Hurisa 

ANNEXURE 15: HEALTHCARE FACILITY 2 REQUEST FOR PERMISSION TO CONDUCT STUDY

Health Facility Administration: Bishoftu General Hospital
Town: Bishoftu Town
Date: 03 July 2020
Health Facility Administration: Bishoftu General Hospital
Town: Bishoftu
Request to conduct study

I am Kidanu Hurisa Chachu a chief Public Health Professional, a research student pursuing a Doctor of Philosophy in Public Health at the University of South Africa. My student number is 67120369.

I hereby request permission to conduct a study at your institution. The title of my study is "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA."

The purpose of this study will be to evaluate same-day ART initiation implementation status in selected healthcare facilities in Ethiopia.

Data will be collected from hospital clinical records of patients in smart care database started ART, healthcare provider's team working in ART clinic. Based on the results, the recommendations will be used to determine ART initiation strategy in ART clinic. Kindly refer to an Ethical clearance certificate from UNISA, UNISA COVID-19 statement and letter of support from Oromia Regional Health Bureau attached with this letter and research proposal.

Should you have concerns about the way in which the research has been conducted, you may contact:

Supervisor:
Prof KA Maboe
Tel: +2712 429 2393
email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee:
Prof JM Mathibe-Neke (Ethics Chair)
Tel: +27(0)12 429 6443
Email: HSREC@unisa.ac.za

Your positive response will be highly appreciated.

Yours faithfully
Kidanu Hurisa _____

ANNEXURE 16: PERMISSION TO CONDUCT STUDY FROM HEALTH FACILITY 1

Koollejjii Fayyaa Hospitaala Adaamaa

Adama Hospital Medical college
አዳማ ሆስፒታል ሜዲካል ኮሌጅ

Ref.No: 0677/K-3773/12
Date: 14/11/2012

To Mr. Kidanu Hurisa Chachu

Subject: **Giving Permission for Data Collection**

We are in receipt of your request permission to collect data on the study title "**SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA**" **in** Adama Hospital Medical College. This is therefor to confirm that permission has been granted to conduct the study in our hospital. We will be interested in the results of study, so share the finding as soon as it is ready.

With Regards

CC

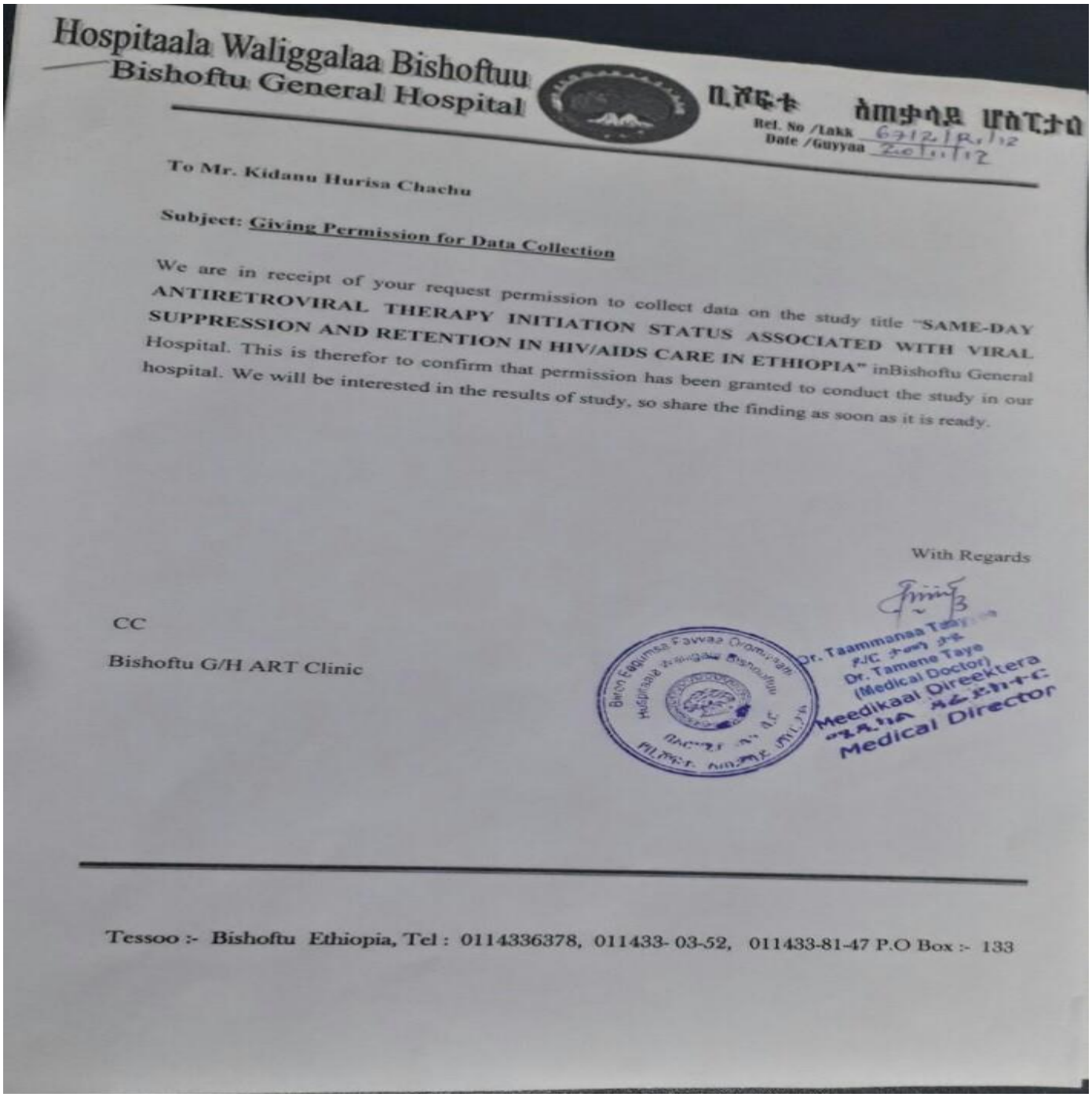
To ART Clinic

Oromia Regional Health Bureau Adama Hospital Medical College

Itti Aanaa Pirovostii Tajaajila Yaalaa

✉84 Tel +251(022)1112424 Fax: +251(022)1118244, E-Mail: adamahos@telecom.net.et.
Adama, Ethiopia

ANNEXURE 17: PERMISSION TO CONDUCT STUDY FROM HEALTH FACILITY 2



Hospitaala Waliggalaa Bishoftuu
Bishoftu General Hospital

ቢሾፍቱ ጠቅላላ ሆስፒታል

Ref. No /Lakk 6712/R/12
Date /Guyyaa 20/11/12

To Mr. Kidanu Hurisa Chachu

Subject: Giving Permission for Data Collection

We are in receipt of your request permission to collect data on the study title "SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA" inBishoftu General Hospital. This is therefor to confirm that permission has been granted to conduct the study in our hospital. We will be interested in the results of study, so share the finding as soon as it is ready.

With Regards

Dr. Taammanaa Taye
Dr. Tamene Taye
(Medical Doctor)
Meedikaal Direektera
ሜዲካል ዳይሬክተር
Medical Director

CC

Bishoftu G/H ART Clinic

Tessoo :- Bishoftu Ethiopia, Tel : 0114336378, 011433- 03-52, 011433-81-47 P.O Box :- 133

ANNEXURE 18: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY THE RESEARCHER FOR HEALTHCARE PROVIDERS

UNISA university of south africa

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA
Researcher: Kidanu Hurisa Chachu
Student Number: 67120369

As a student researcher, I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I agree not to divulge, publish, or otherwise make known to unauthorized persons or to the public any information obtained in the course of this research project that could identify the persons who participated in the study.
- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential. I agree not to divulge or otherwise make known to unauthorized persons any of this information, unless specifically authorized to do so by approved protocol or by the local authority acting in response to applicable law or court order, or public health or clinical need.
- I understand that I am not to read information about study sites or participants, or any other confidential documents, nor ask questions of study participants for my own personal information but only to the extent and for performing my assigned duties on this research project.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

_____ ___	20 July 2020	Kidanu Hurisa Chachu
Signature of investigator	Date	Printed name

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PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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ANNEXURE 19: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY THE RESEARCHER FOR PATIENTS (AFAN OROMO)

UNISA university of south africa

Mata duree qorannichaa: **SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA**

Qoratan : Kidanu Hurisa Chachu

Lakkoofsa barataa: 67120369

Akka barataa fi qorataatti icciti namoota qorannoo kana ittatti hirmaatanii fi bakka qorannichaa baruun koo hin hafu. Ragaa kana mallatteessuudhaan iciitin bakka qorannoo fi namoota as keessatti hirmaatani kan eegu ta'uu koo mallaattoo kootin nan mirkaneessaa dirqama armaan gadi nan guuta:

- Maqaa fi ragaan namootaa fi bakka qorannootiin walqabatan guutumaan guututti iccitin isaanii kan eegameedha.
- Icciitin namaootaas ta'ee kan bakka qorannoon kun itti gaggeeffame yeroo maxxansamus ta'ee namoota hin ilaallanneef dabarsamee kan hin kennamne ta'uu nan mirkaneessa
- Odeeffannoon namoota qorannoo keessatti hirmaatanis ta'ee kan bakka qorannoon itti gaggeeffame icciiti isaa nan eega. Icciitin namaootaas ta'ee kan bakka qorannoon kun itti gaggeeffame yeroo maxxansamus ta'ee namoota hin ilaallanneef dabarsamee kan hin kennamne ta'uu nan mirkaneessa, iccitin kun yoo seraan ykn yaaliin kiliinikaatiif barbaadame qofa ifa ta'uu danda'a.
- Odeeffanno bakka qoraannoos ta'ee kan namoota dhuunfaa icciti isaanii qorannoo irra kan darbee faayidaa biraa kan dhuunfaatiif hin oolchu.
- Yoo iccitin namoota ykn bakka qorannichaa cabee battalumatti dhaabbata qorannon itti gaggeeffamuu fi qama dhimmi ilaalamutti kan gabaafamu ta'a.

_____	_____	20 July 2020	Kidanu Hurisa Chachu
Mallattoo Qorataa		Guyyaa	Maqaa

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ANNEXURE 20: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY A HUMAN RESOURCE HEAD

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "A" HUMAN RESOURCE HEAD

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As a human resource unit head, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the name of healthcare providers working in ART Clinic, and I will assign codes to the data shared with the researcher, which will be exported from the facility human resource database.
- I will confirm to share participant contact addresses after I confirm that the healthcare providers or participants agreed to do that. The healthcare providers must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of HR Head	21 July 2020	Dage Fikadu
	Date	Printed name

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ANNEXURE 21: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY A DATA CLERK

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "A" DATA CLERK

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As an ART Clinic data clerk, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the patient's name, and I will assign codes to the data shared with the researcher, which will be exported from the ART clinic database (Smart care database).
- I will confirm to share participant contact addresses after I confirm that the patients or participants agreed to do that. The patient must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of Data clerk	22 July 2020	Girma Degefa
	Date	Printed name

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ANNEXURE 22: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY B HUMAN RESOURCE HEAD

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "B" HUMAN RESOURCE HEAD

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA
Researcher: Kidanu Hurisa Chachu
Student Number: 67120369

As a human resource unit head, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the name of healthcare providers working in ART Clinic, and I will assign codes to the data shared with the researcher, which will be exported from the facility human resource database.
- I will confirm to share participant contact addresses after I confirm that the healthcare providers or participants agreed to do that. The healthcare providers must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of HR Head	24 July 2020	Amsalu Asefa
	Date	Printed name

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ANNEXURE 23: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY B DATA CLERK

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "B" DATA CLERK

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As an ART Clinic data clerk, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the patient's name, and I will assign codes to the data shared with the researcher, which will be exported from the ART clinic database (Smart care database).
- I will confirm to share participant contact addresses after I confirm that the patients or participants agreed to do that. The patient must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of Data clerk	29 July 2020	Girma Alemu
	Date	Printed name

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ANNEXURE 24: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY "1" HUMAN RESOURCE HEAD

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "1" HUMAN RESOURCE HEAD

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As a human resource unit head, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the name of healthcare providers working in ART Clinic, and I will assign codes to the data shared with the researcher, which will be exported from the facility human resource database.
- I will confirm to share participant contact addresses after I confirm that the healthcare providers or participants agreed to do that. The healthcare providers must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of HR Head	14 December 2020	Deribie Yami
	Date	Printed name

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ANNEXURE 25: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY "1" DATA CLERK

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "1" DATA CLERK

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As an ART Clinic data clerk, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the patient's name, and I will assign codes to the data shared with the researcher, which will be exported from the ART clinic database (Smart care database).
- I will confirm to share participant contact addresses after I confirm that the patients or participants agreed to do that. The patient must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of Data clerk	16 December 2020	Tariku Nigusie
	Date	Printed name

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Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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ANNEXURE 26: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY "2" HUMAN RESOURCE HEAD

UNISA

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "2" HUMAN RESOURCE HEAD

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As a human resource unit head, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the name of healthcare providers working in ART Clinic, and I will assign codes to the data shared with the researcher, which will be exported from the facility human resource database.
- I will confirm to share participant contact addresses after I confirm that the healthcare providers or participants agreed to do that. The healthcare providers must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of HR Head	07 December 2020 Date	Mesfin Girma Printed name

ANNEXURE 27: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY HEALTHCARE FACILITY "2" DATA CLERK

UNISA university of south africa

CONFIDENTIALITY AGREEMENT BY HEALTHCARE FACILITY "2" DATA CLERK

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu

Student Number: 67120369

As an ART Clinic data clerk, I understand that the researcher does not have access to confidential information about participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agreeing to the following:

- I understand that names and any other identifying information about participants are completely confidential.
- I agree not to disclose the patient's name, and I will assign codes to the data shared with the researcher, which will be exported from the ART clinic database (Smart care database).
- I will confirm to share participant contact addresses after I confirm that the patients or participants agreed to do that. The patient must have signed a consent form indicating that she or he has agreed to participate in this study.
- I agree to notify the local authority immediately should I become aware of an actual breach of confidentiality or a situation, which could potentially result in a breach, whether this be on my part or on the part of another person.

Signature of Data clerk	10 December 2020 Date	Sores Gedefa Printed name

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ANNEXURE 28: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY STATISTICIAN

UNISA university of south africa

Title of Research: **SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA**

Researcher: Kidanu Hurisa Chachu
Student Number: 67120369
Email: 67120369@mylife.unisa.ac.za
Phone No: +251922981258
Statistician: Princess Lekhondlo Masondo (statistician)
Email: masonpl@unisa.ac.za
Phone No: 0835932861

As a researcher statistician, I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential.
- I understand that I am not to read information about study sites or participants, or any other confidential documents, but only to the extent and for performing my assigned duties on this research project as statistician by the researcher.

Name: Princess Lekhondlo Masondo

Signature: 

Date: 31/07/2023

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ANNEXURE 29: CONFIDENTIALITY BINDING AGREEMENT SIGNED BY CO-CODER

UNISA university of south africa

Title of Research: SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Researcher: Kidanu Hurisa Chachu
Student Number: 67120369
Email: 67120369@mylife.unisa.ac.za
Phone No: +251922981258
Co-coder: Prof TM Mothiba
Email: mothibat@yahoo.com
Phone No: +27732565676

As a researcher co-coder, I understand that I may have access to confidential information about study sites and participants. By signing this statement, I am indicating my understanding of my responsibilities to maintain confidentiality and agree to the following:

- I understand that names and any other identifying information about study sites and participants are completely confidential.
- I understand that all information about study sites or participants obtained or accessed by me in the course of my work is confidential.
- I understand that I am not to read information about study sites or participants, or any other confidential documents, but only to the extent and for performing my assigned duties on this research project as co-coder by the researcher.

Name: **Prof TM Mothiba**
Signature
Date: August 20, 2022

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
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ANNEXURE 30: CONSENT TO PARTICIPATE IN THIS STUDY FOR HEALTHCARE PROVIDERA (ENGLISH)

UNISA university of south africa

ANNEXURE 22: CONSENT TO PARTICIPATE IN THIS STUDY (ENGLISH)

I, _____ (participant name), confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that Cell phone interview will be recorded after being explained by the researcher about its purpose of being used in this study.

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

Supervisor:

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee:

Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

I have received a signed copy of the informed consent agreement.

Participant Name & Surname..... (please print)

Participant Signature.....Date.....

Researcher's Name & Surname: Kidanu Hurisa Chachu

Researcher's signature..... .....Date: 05/08/2020

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ANNEXURE 31: CONSENT TO PARTICIPATE IN THIS STUDY FOR PATIENTS (AFAN OROMO)

UNISA university of south africa

ANNEXURE 23: CONSENT TO PARTICIPATE IN THIS STUDY (AFAN OROMO)

Ani, _____ (maqaa hirmaataa), namni ani akka qorannoo kana keessatti hirmaannu nagaafate adeemsa, haalaa, faayidaa fi midhaa qorannoo kana natti himu isaa nan mirkaneessa.

Akka naaf dubbifamette (hamametti) waa'ee qorannoo kana kan hubadhe ta'uu nan mirkaneessa.

Akka natti himaametti yeroon barbaade gaaffii gaafachuu waan danda'uuf qorannoo kana keessatti hirmaachuuf eyyamaamaadha.

Hirmaannaan koo feedhiidhaan waan ta'eef adabbii tokko malee yoon barbaade gaaffii fi deebii kana giddutti addan kutu nan danda'a (yoo ni ilaallata ta'e).

Taajaailuma qoraanno kanaaf sagalee bilbilaan haasa'ame akka waraabamu waan natti himaameef eyyemamaa ta'uu koo mirkaneesseera.

Argannoon qorannoo kana gabaafamuu, maxxansamuu fi walga'ii adda addaa irratti dhiyaachuu kan danada'uu yoo ta'u iccitin hirmaannaa kooti kan eegame ta'a.

Too'ataa Qoranicha (Supervisor):

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Dura taa'aa koree naamusa qorannoo Damee qorannoo fayyaa Yuuniversiitii Afrikaa Kibbaa (Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee):

Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

Haftee waliigaltee kana mallattessee fudhadheera.

Maqaa hirmaataa fi akaakayyuu..... (maqaa hirmaata)

Mallattoo hirmaataa.....Guyyaa .....

Maqaa qorataa fi akaakayyuu: Kidanu, Chachu

Mallattoo qorataa..... .....Guyyaa: 05/08/2020

University of South Africa
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ANNEXURE 32: INFORMATION SHEET FOR PATIENTS (AFAN OROMO VERSION)

UNISA university of south africa

ODEEFFANNO HIRMMATAAF

Qorannoo doctoorummaatiif (digirii 3ffaatiif) "Kidaanuu Hurrisaa Caaccuu" barataa University Afrikaa Kibbattaa irratti hirmaachuuf isin gaafatan yoo ta'u, gaaffii ykn yaaddoo qabdan yoo jirate karaa lakkoofsa bilbila (Lak: +251 922981258) Kidaanuu Hurrisaa qunnamu dandeessu.

KAAYYOO QORANNICHAA

Qoraannoon kuni Itoophiyaa keessatti raawwii qoricha HIV eedsii guyyadhuma qorannoo dhiigaa jalqabsiisuu fi faayida yaalichi vaayirasii dhiiga keessa jiru fi lubbuun jiraachuu namoota qoricha irra jiranii ilaaludha.

ADEEMSA

Hirmaannaan qorannoo kanaa fedhii irratti kan hundaa'ee fi sa'aatii tokko caalaa kan hin fudhanneedha. Gaaffii deebii laattaniif eenyummaa keessan kan adda hin baasneedha. Sagaleen keessan raga qulqulluu qabachuuf akka nutti toluf ni warabbanna,garuu dhimmi biraatiif ittit hin fayyadamnu.

MIIDHAA FIDU DANDA'U

Qoraannoon kuni miidhaan isin irraan gahu hin jiru yeroo keessan aarsaa gochuu irra kan hafe. Rakkina koroona viyirasii (COVID-19) walqabate jiru hir'isuuf gaaffi fi deebeen kan godhamu bilbilaani. Dabalataanis gaaffii fi deebiin godhamu kan waraabamu ta'uu isin gaafanna. Yoo gaarummaan ykn rakkon fayyaa isin muudate gaggeessa qorannichaa qunnamuu dandeessu.

FAAYIDAA QORANNICHI HIRMAATAAF/HAAWAASA QABU

Qorannoo kana irratti hirmaachuu keessaniif faayidaan taajila geejjibaa fi laaqaanan ala argattan hin jiru. Garuu bu'aan qorannoo kana adeemsa tajaajila qorich farra HIV kennu irratti addeemsa uumuu danda'u qaba.

KAFALTII HIRMATAAF

Qorannoo kana irratti hirmaachuf kafaltiin raawwatamu hin jiru

ICCITI

Yeroo kamittu icciti hirmaanna keessanii eegun dirqama qorataati. Deebii keessan koompita keessatti bifan namni biraa argu hin dandeenyee kan kaahamu yoo ta'u argannoon qorannichaa maaxxansamu danada'a.

HIRMAANNAA ADDAN KUTUU

Qorannoo kana keessattii hirmaachuun fedhii irratti kan hundaa'eedha. Feedha keessaniin waan hirmaattaniif yeroo kamittu addaan kutuuf mirga guutuu qabdu.

1. Eyyee, nan hirmaadha
2. Lakki, hin hirmaadhu

MIRGA QORANNOO KEESSATTI HIRMAACHUU

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

Fedhii hirmaannaa keessanii yeroo barbaaddanitti adabbii tokko malee addan kutuu dandeessu. Eyyaamni qorannoo kana gaggeessuu Yuunivarsiitii Afrikaa Kibbaa fi Biiroo Eegumsa Fayyaa Oromia (BEFO) irra kan fudhatameedha. Hirmaanna keessan ilaalchisee mirga gaafachuu waan qabdaniif gaggeessa qorannichaa qunnamu dandeessu.

Too'ataa Qoranicha (Supervisor):

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Dura taa'aa koree naamusa qorannoo Damee qorannoo fayyaa Yuuniversiitii Afrikaa Kibbaa (Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee):

Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

MALLATTOO HIRMAATAA QORANNICHAA

Qorannoo ilaalchisee odeeffannoo naaf kenname hubadheera. Gaaffiin koo waan naaf deebi'eef qorannoo kanatti hirmaachuuf eyyamama ta'uu ko mallattoo kootin nan mirkaneessa.

Mallattoo hirmaataa _____ Guyyaa: _____

Mallattoo ragaa _____ Guyyaa: _____

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ANNEXURE 33: INFORMATION SHEET FOR HEALTHCARE PROVIDERS (ENGLISH)

UNISA university of south africa

Participant Information Sheet

You are asked to participate in a research study conducted by "Kidanu Hurisa Chachu", a doctoral student at the University of South Africa (UNISA).

If you have any questions or concerns about the research, please feel free to contact the investigator: 'Kidanu Hurisa Chachu' (Tele: +251 922981258).

PURPOSE OF THE STUDY

The purpose of this study will be to evaluate same-day ART initiation implementation status and its effect on viral load suppression and retention in HIV/AIDS care in selected healthcare facilities in Ethiopia.

PROCEDURES

If you volunteer to participate in this study, you will be asked to participate in cell phone in-depth interview which will take not more an hour. You cannot be identified through your responses. Cell phone in-depth recording will be used to capture information for verification and transcription.

POTENTIAL RISKS AND DISCOMFORTS

The study will not impose any significant risk may be minimal discomfort that might be encountered for time consumed during interview. To protect and minimize risk of COVID-19, Cell phone interview will be conducted. To capture full information cell phone interview will be recorded. If you experience discomfort and wish to receive psychological support, please contact the investigator of the study for a referral.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

There will be no direct benefit that would be gained by attending in this study. However, the results of this study can contribute to the development of ART initiation, viral suppression monitoring and retention in HIV/AIDS care.

PAYMENT FOR PARTICIPATION

There will no payment for participating in this study.

CONFIDENTIALITY

The principal investigator is responsible for ensuring confidentiality at any time. The completed data will be stored in a locked cabinet. Electronic copies of the data will be kept with passwords protected computer. The result of the study will be communicated through journals or other outlets.

PARTICIPATION AND WITHDRAWAL

You can choose whether to be participate in this study or not. If you volunteer to participate in this study, you may withdraw at any time. Do you agree to participate in this study?**1. Yes, I will participate** **2. No, I will not participate**

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Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
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RIGHTS OF RESEARCH PARTICIPANTS

You have full right to withdraw your consent at any time and discontinue participation without consequence. This study has been reviewed and received ethical clearance through the UNISA and Oromia Regional Health Bureau. If you have questions regarding your rights as a research participant, please contact the investigator of the study.

Supervisor:

Prof KA Maboe

Tel: +2712 429 2393

email, maboeka@unisa.ac.za.

Chair of the University of South Africa, Department of Health Studies, Research Ethics Committee:

Prof JM Mathibe-Neke (Ethics Chair)

Tel: +27(0)12 429 6443

Email: HSREC@unisa.ac.za

SIGNATURE OF RESEARCH PARTICIPANT

I have read the information provided for the study as described here in. My questions have been answered to my satisfaction, and I agree to participate in this study.

Signature of the Participant _____ Date: _____

Signature of the Witness _____ Date: _____

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ANNEXURE 34: INTERVIEW GUIDE FOR ART PATIENTS

Name of student: Kidanu Hurisa Chachu

Student Number: 67120369

Data collection instrument serial number: _____

Name of interviewer: _____

Date of interview: _____

Time of interview: _____

Mode of interview: _____

Participant's information

Participant code	
Age	
Sex	
Religion	
Place of birth (Urban/Rural)	

GRAND TOUR QUESTION

How was same-day ART initiation status be associated with viral suppression and retention in HIV/AIDS care in Ethiopia?

1. What are the factors that led to lost to follow-up of patients started on same-day from HIV/AIDS care?
2. What are the challenges and benefits encountered with same-day ART initiation?
3. How strategies developed will be utilised to optimize same-day ART initiation, enhance retention in HIV/AIDS care and viral suppression in healthcare facility in Ethiopia?

FOLLOW UP QUESTIONS

1. How long do you received ART drug?
2. Do you know the name of drug you are currently receiving?
3. How many care providers do you visit in you single clinic visit? Who are they? Do you regularly get these people on your monthly clinic visit?

4. What are the benefits of same-day ART initiation?
5. What are challenges you encountered with initiation of same-day ART?
6. Do you know your viral load result? Explain what does it mean?
7. Do you have any addiction (alcohol drinking, smoking, other etc)
8. What about your physical activities and feeding practice with your drug? Do you received any advice regarding physical activity and feeding from your care giver?
9. What do you think why patients started on same-day ART are lost from care? What are the factors that led to lost to follow-up from HIV/AIDS care?
10. How strategies developed will be utilised to optimize same-day ART initiation, enhance retention in HIV/AIDS care and viral suppression in healthcare facility in Ethiopia?
11. When do you think HIV positive patient should start ART?
12. What is you recommendation regarding same-day ART initiation for newly diagnosed HIV positive patients? (Probe: adult).

ANNEXURE 35: INTERVIEW GUIDE FOR ART CLINIC HEALTHCARE PROVIDER TEAM

Name of student: Kidanu Hurisa Chachu

Student Number: 67120369

Data collection instrument serial number: _____

Name of interviewer: _____

Date of interview: _____

Time of interview: _____

Mode of interview: _____

Participant's information

Participant code	
Age	
Sex	
Religion	
Place of birth (Urban/Rural)	

Grand tour question was be "How was same-day ART initiation status be associated with viral suppression and retention in HIV/AIDS care in Ethiopia?"

1. What are the factors which has led to lost to follow-up of patients started on same-day ART from HIV/AIDS care?
2. What are the challenges and benefits encountered with initiation of same-day ART?
3. How patients initiated on same-day will be traced/identified?
4. How strategies developed will be utilised to optimize same-ART initiation, enhance retention in HIV/AIDS care and viral suppression in healthcare facility in Ethiopia?

The following questions may be asked based on the participants' responses:

1. Who is the 1st contact person with patients with HIV positive after diagnosis?

2. Would you explain flow of newly diagnosed HIV patient in enrolment of HIV/AIDS care in your facility?
3. What is you role in ART clinic?
4. How do you understand same-day ART initiation?
5. What are eligibility criteria for same-day ART initiation?
6. Who is responsible for counselling patients to start ART on same-day?
7. What are benefit of initiating patients on ART on same-day?
8. What are challenges regarding same-day ART initiation?
9. What do you think about retention in HIV/AIDS chronic care of patients started same-day on ART?
10. What factors do you think led patients started on same-day ART to lost from HIV/AIDS chronic care?
11. How do you evaluate viral suppression of patients started same-day on ART?
12. How do you trace lost patients who started same-day on ART?
13. Do you have strategies for lost to follow up tracing? Yes No If yes Explain. If no why and what do you suggest?
14. What strategy do you recommend for same-day ART initiation?

ANNEXURE 36: PHASE 2 RETROSPECTIVE DOCUMENT ANALYSIS DATA COLLECTION CHECKLIST

Healthcare facility: 1. Healthcare facility "**1**" ☐ 2. Healthcare facility "**2**" ☐

Case/Serial Number_____

SECTION A. DEMOGRAPHIC INFORMATION		
S.N	**Questions item**	**Answers/alternative**
1	Age	_____ years old
2	Sex	1. Male ☐ 2. Female ☐
3	Marital status	1. Single ☐ 2. Married ☐ 3. Divorced ☐ 4. Widowed ☐ 5. Separated ☐
4	Religion	1. Protestant ☐ 2. Catholic ☐ 3. Orthodox ☐ 4. Muslim ☐ 99. Others specify _____
5	Educational Level	1. No formal education ☐ 2. Primary ☐ 3. Secondary ☐ 4. Tertiary ☐
6	Patients address	1. Urban ☐ 2. Rural ☐
7	Does the patient have a phone number?	1. Yes ☐ 2. No ☐
8	Is the patient's kebele documented?	1. Yes ☐ 2. No ☐
9	Is the patient's house number documented?	1. Yes ☐ 2. No ☐
SECTION B. BASE LINE CLINICAL and LABORATORY INFORMATION		
10	Does the patient have a history of opportunistic illness at enrolment?	1. Yes ☐ 2. No ☐
11	If question number 10 is Yes, what is the OIs?	1. TB ☐ 2. Kaposi's sarcoma ☐ 3. Toxoplasmosis ☐ 4. (PCP) ☐ 5. 99. Other (specify)_____
12	Weight at baseline (at enrolment)	_____ kg
13	Height at baseline (at enrolment)	_____cm
14	Functional status at enrolment	1. Working ☐ 2. Ambulatory ☐ 3. Bed ridden ☐ 4. Not assessed ☐
15	WHO clinical staging of HIV at enrolment	1. Stage I ☐ 2. Stage II ☐ 3. Stage III ☐ 4. Stage IV ☐
16	Does a patient have disclosed HIV status at enrolment?	1. Yes ☐ 2. No ☐

17	Does the patient have a CD4 cell count at baseline?	1. Yes ☐ 2. No ☐
18	If Question number 17 is yes, what is the CD4 value at baseline?	_____cell/mm^3
SECTION C. SAME-DAY ART INITIATION RELATED INFORMATION		
19	HIV testing and diagnosis unit	1. Medical OPD ☐ 2. IPD ☐ 3. ANC ☐ 4. Delivery ☐ 5. VCT ☐ 6. ART clinic ☐ 7. KP/SNS ☐ 8. From another healthcare facility ☐ 99. Other (Specify_____
20	ART initiation date	(DD/MM/YYYY)_____
21	Last follow-up date	(DD/MM/YYYY)_____
22	Current HIV/AIDS care status	1. Current in care ☐ 2. Transferred out ☐ 3. Confirmed deaths ☐ 4. Lost to follow-up ☐ 5. Unknown ☐
23	Does the patient have a VL result at 6 months?	1. Yes ☐ 2. No ☐ 3. NA ☐
24	If question number 23 is Yes, the date the viral load result received	(DD/MM/YYYY)_____
25	If question number 23 is Yes, what is the viral load result at 6 months	1. suppressed ☐ 2. Not suppressed ☐
26	Does the patient have a VL result at 12 months?	1. Yes ☐ 2. No ☐ 3. NA ☐
27	If question number 26 is Yes, date the viral load result received	(DD/MM/YYYY)_____
28	If question number 26 is Yes, what is the viral load result at 12 months	1. suppressed ☐ 2. Not suppressed ☐
29	Does the patient have a VL result at 24 months?	1. Yes ☐ 2. No ☐ 3. NA ☐
30	If question number 29 is Yes, date the viral load result received	(DD/MM/YYYY)_____
31	If question number 29 is Yes, what is the viral load result at 24 months	1. suppressed ☐ 2. Not suppressed ☐
32	Regimens at ART initiation	1. 1j =TDF-3TC-DTG ☒ 2. 1c=AZT-3TC-NVP ☐ 3. 1d=AZT-3TC-EFV ☐ 4. 1e=TDF-3TC-EFV ☐ 5. 1f=TDF-3TC-NVP ☐ 6. 2nd line regimens 99. Other

		specify----------
33	Dispense dose at ART initiation	_____ month (s)
34	Does the regimen changed?	1. Yes ☐ 2. No ☐
35	If Question 34 is Yes, what is the reason for the regimen change?	1. Toxicity/SE ☐ 2. New drug available ☐ 3. Drug out of stoke ☐ 4. Virological failure ☐ 99. Other specify_____
36	Last follow-up ARV regimen	1. 1j =TDF-3TC-DTG ☐ 2. 1c=AZT-3TC-NVP ☐ 3. 1d=AZT-3TC-EFV ☐ 4. 1e=TDF-3TC-EFV ☐ 5. 1f=TDF-3TC-NVP ☐ 6. 2nd line regimens 99. Other specify----------
37	Last follow-up ARV adherence (skip to question 39 if the answer is not applicable)	1. Good ☐ 2. Fair ☐ 3. Poor ☐ 4. Not filled ☐ 5. Not applicable ☐
38	What is a reason for fair or poor adherence?	1. Toxicity/SE ☐ 2. Share with others ☐ 3. Forgot ☐ 4. felt better ☐ 5. Too ill ☐ 6. Stigma ☐ 7. Drug stoke out ☐ 8. Travelling problem ☐ 9. Alcohol ☐ 99. Others specify_____
39	Last follow-up dispense dose	_____ month (s)
40	Is the patient is received other drugs in addition to the ART drug	1. Yes ☐ 2. No ☐
41	Last follow-up weight	_____kg
42	Last follow-up height	_____ cm
43	MUAC for pregnant women	_____cm
44	Last follow-up functional status	1. Working ☐ 2. Ambulatory ☐ 3. Bed ridden ☐
45	Last follow-up treatment staging	1. T1 ☐ 2. T2 ☐ 3. T3 ☐ 4. T4 ☐
46	Last follow-up TB screening result	1. Not assessed ☐ 2. Negative ☐ 3. Positive ☐
47	TB prophylaxis (INH) at any time in the study period	1. Yes ☐ 2. No ☐
48	TB treatment at any time in the study period	1. Yes ☐ 2. No ☐
49	Opportunistic infections were present at the last follow-up?	1. Yes ☐ 2. No ☐

50	If yes to question 49, what is the current OI?	1. TB ☐ 2. Kaposi's sarcoma ☐ 3. Toxoplasmosis ☐ 4. (PCP) ☐ 99. Other (specify)_____
51	Does the patient receive cotrimoxazole (CPT) at any time in the study period?	1. Yes ☐ 2. No ☐ 3. NA ☐
52	Does the patient set up an HIV prevention plan?	1. Yes ☐ 2. No ☐
53	If the answer to question number 52 is Yes, what is or are HIV prevention plans? (Tick that all apply)	1.Agreed to disclose to partner ☐ 2. Assessed for STI ☐ 3. Planned to bring a partner for HIV test ☐ 99. Other specify_____

ANNEXURE 37: AUDIT TRAILS REPORT

Study title	**SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA**		
Principal Researcher	**Kidanu Hurisa CHACHU**		
Auditing done by	**Name: Kasu Tola**	**Role: MOH-Ethiopia/Public Health Specialist/Quality Improvement Advisor**	**Date: February: 04, 2024**
Audit trail classification	**File types**	**Evidence available (Yes/No)**	**Remark**
Raw data	Interview records	Yes	
	written field notes	Yes	
Data reduction and analysis	Condensed note	Yes	
	themes	Yes	
Data reconstruction and synthesis	Categorical structure • Theme • definitions	Yes	Available as soft copy
	Finding and conclusions • interpretations • inferences	Yes	
	Final report • Connection to existing literature • Integration of concepts, relationships and interpretations	Yes	
Process note	Methodological note • procedures, • designs, • strategies and • rationales	Yes	Check in thesis and proposal
	Trustworthiness note • credibility, • dependability and • confirmability	Yes	
	Audit trails note	Yes	I have done it
Materials relating to intentions and dispositions	proposal, personal notes (reflexive notes and motivations) and expectations (predictions and intentions)	Yes	
Instrument development information	pilot forms, preliminary schedules	Yes	Available in soft copies

ANNEXURE 38: PROOF OF QUALITATIVE ANALYSIS CODING CERTICIFICATE

Qualitative data analysis

DEGREE: DOCTOR OF PHILOSOPHY

STUDENT:
Kidanu Hurisa Chachu

THIS IS TO CERTIFY THAT:

Professor Tebogo M. Mothiba has co-coded the following qualitative data:

Unstructured one-to-one interviews

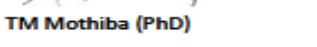
For the study:

SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHOPIA

I declare that the candidate and I have reached consensus on the major themes reflected by the data. I further declare that adequate data saturation was achieved as evidenced by repeating themes.

Independent Coder: Prof TM Mothiba

SEPTEMBER 2022



TM Mothiba (PhD)

ANNEXURE 39: PROOF OF QUANTITATIVE DATA ANALYSIS CERTIFICATE

Certificate of Quantitative Data Analysis

DEGREE: DOCTOR OF PHILOSOPHY

STUDENT: Kidanu Hurisa Chachu

THIS IS TO CERTIFY THAT

Ms. Masondo, Princesss Lekhondlo from University of South Africa **has provided**

support for the quantitative data analysis for the study:

SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

Princesss Lekhondlo: Research Support Consultant, University of South Africa

Date: 14 September 2023

Signature: 

ANNEXURE 40: STRATEGIES VALIDATION CRITERIAS

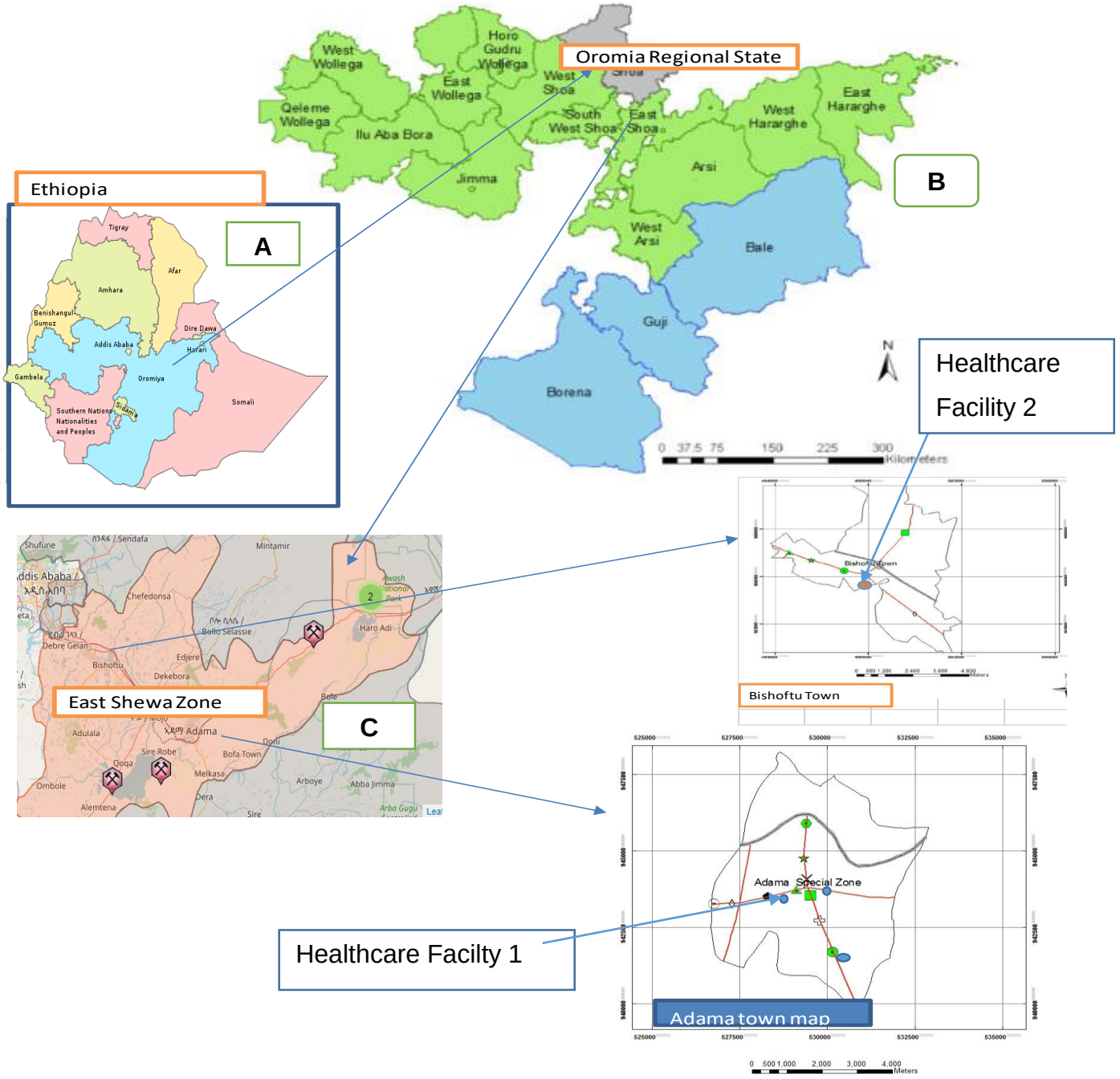
S.N	Validation criteria	Description	Strongly disagree (1), disagree (2), agree (3) strongly agree (4)
1	Clarity	The strategy is easy and simple to understand.	
2	Acceptability	The strategy will be practical and acceptable by ART programs and stakeholders.	
3	Applicability	The scope and users of the strategy are clearly defined.	
4	Relevance	The strategy is appropriate to enhance HIV prevention, care and treatment services.	
5	Effectiveness	The strategy can support the countries to achieve 2030 target.	
6	Feasibility	The practicality or possibility to be implemented within a given set of circumstances.	
7	Sustainability	The capacity of a strategy to be maintained over time, considering its long-term impact on HIV care and treatment.	
8	Achievability	The feasibility of successfully implementing and attaining the desired goals in HIV care and treatment.	

ANNEXURE 41: PARTICIPANTS FOR STRATEGIES VALIDATION

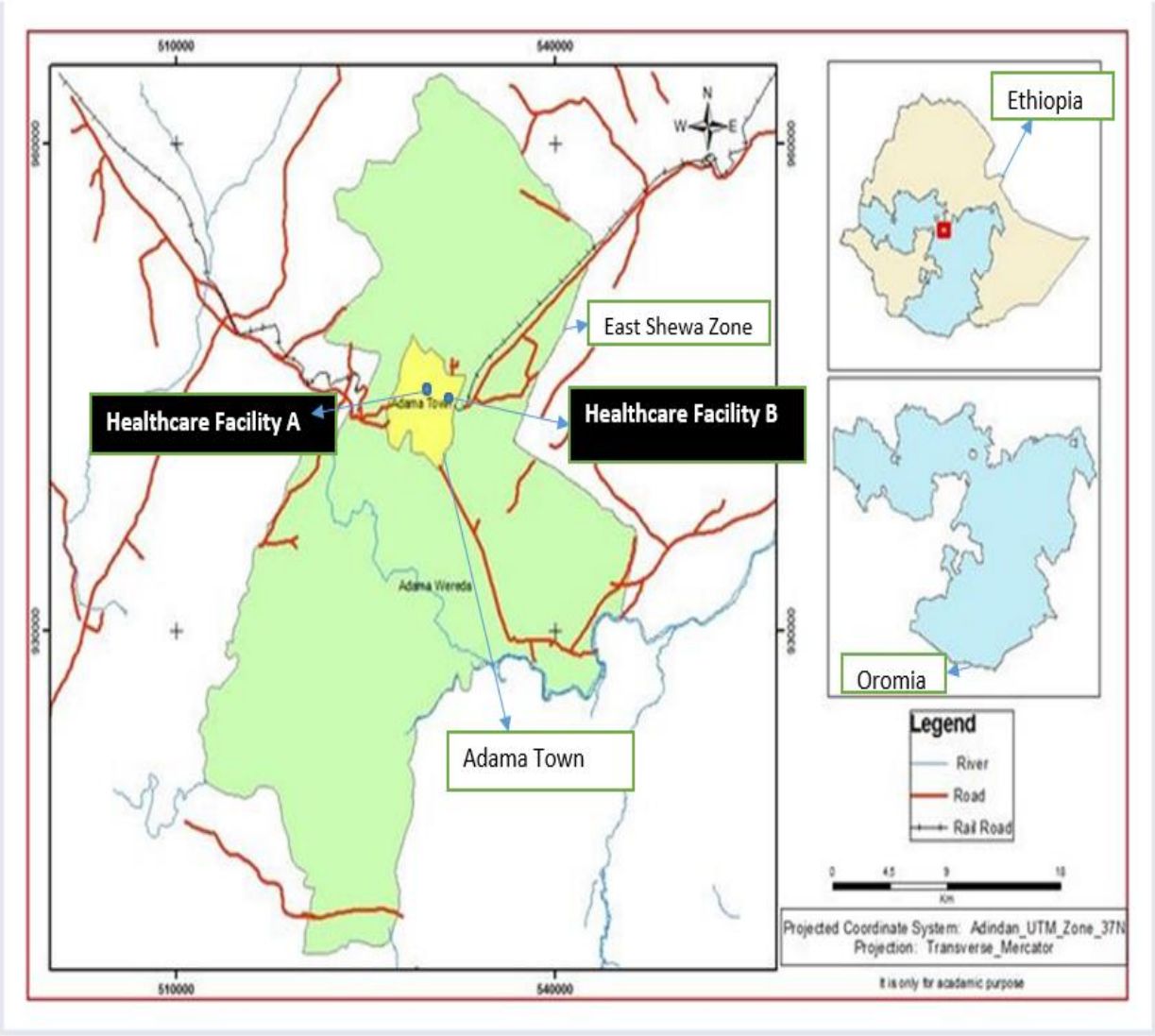
S.No	Code	Age	Gender	Organisation	Position	Qualification	Year of experience
1	HE1	30-39	M	MoH	Care and Treatment Advisor	MPH	10
2	HE2	30-39	M	ORHB	Monitoring & Evaluation officer on HIV/AIDS	MPH	10
3	HE3	30-39	M	MoH	HIV/AIDS program M&E Officer	MPH	13
4	HE4	30-39	M	MoH	HIV Program coordinator	MPH	10
5	HE5	30-39	F	MoH	Monitoring & Evaluation Advisor	MPH	11
6	HE6	30-39	M	Sidama RHB	HIV/AIDS Prevention, Care and Treatment Officer	MPH	10
7	HE7	30-39	F	HRHB	Regional HIV health information system and Digital health specialist	MSc in Health M&E	7
8	HE8	30-39	M	Sidama RHB	Regional Coordinator of HIV-Case Surveillance	PhD in Public Health	5
9	HE9	30-39	M	MoH	HIV Advisor	MD +MPH	10
10	HE10	30-39	M	ORHB	HIV/AIDS Care & Treatment Advisor	MD	6

ANNEXURE 42: MAP OF STUDY AREA AND SETTING

Study area and setting



ANNEXURE 43: MAP OF PRE-TESTING AREA AND SETTING



ANNEXURE 44: LISTS OF HEALTHCARE PROVIDERS RECEIVED FROM HEALTHCARE FACILITIES 1 AND 2

Healthcare Facility 1

Date: Mar 16, 2021

	Role in ART clinic	Profession (Physician, Nurse, HO, Others)	Phone #	Email address
	ART provider	ART physician	913896549	deribuabebe@gmail.com
	ART provider	ART physician	924119419	Telegram
	ART provider	ART physician	917886932	Telegram
	ART provider	ART Nurse	912062418	azalech.debela@gmail.com
	ART provider	ART Nurse	0946936318/0911040498	tigist123@gmail.com
	ART provider	ART Nurse	911386361	damitu18@gmail.com
	ART provider	ART Nurse	910733853	Telegram
	ART provider	ART Nurse	913494052	Telegram
	ART provider	ART Nurse	994932640	Telegram
	ART provider	ART Nurse	913189416	Firegenetaxletu2@gmail.com
	Program Officer	HO	924063160	mubehamid368@gmail.com
	Program Officer	HO	911617524	kebedemeburia@gmail.com
	M&E Officer	Nurse	913033999	tsgd123@gmail.com
	Adhrence Supporter		910236455	Telegram
	Adhrence Supporter		912227825	Telegram
	Adhrence Supporter		912294596	Telegram
	Case Manage		912219585	Telegram
	Case Manage		912224071	Telegram
	Case Manage		910236048	Telegram
	Case Manage		910236851	Telegram
	Case Manage		912189081	Telegram
	Adhrence Supporter		910239610	Telegram
	Adhrence Supporter		910253096	Telegram
	Adhrence Supporter		912234901	Telegram
	Adhrence Supporter		910963024	Telegram

Healthcare Facility 2

Date: Mar 1, 2021

Role in ART clinic	Profession (Physician, Nurse, HO, Others)	Phone #	Email address
ART Physician	Physician	922488951	
ART Provider	HO	910279723	
ART Provider	HO	911914651	
ART Provider	HO	911030908	
ART Provider	Nurse	917727832	
PMTCT FP	Nurse	916590609	
Treatment Specialist		911316141	
M&E Officer		932390220	
P&FBICT Officer		911389227	
Case Manager		927995146	
Case Manager		912832820	
Case Manager		912835887	
Adherence Supporter		910753856	
ART Provider	HO	924461656	
Adherence Supporter		912061033	
Adherence Supporter		910389245	
Adherence Supporter		942462551	
Mother support		983822204	
Mother support		910753497	
Mother support		961950210	
Mother support		939800170	

ANNEXURE 45: LIST OF PATIENTS RECEIVED FROM HEALTHCARE FACILITIES

HEALTHCARE FACILITY 1 (SAMPLE)

Sex	Weight	Age	FollowUpDa	FollowUpDate_GC	Next_visit_DateET	Next_visit_Date_GC	ARVRegimen	RegimensLin	ARTDoseDays	FollowUpStatus
M	95	43	17/10/2012	24/06/2020	12/04/2013	21/12/2020	1j	1	180	Alive on ART
M	80	63	15/10/2012	22/06/2020	10/04/2013	19/12/2020	1j	1	180	Alive on ART
M	70	41	20/10/2012	27/06/2020	15/04/2013	24/12/2020	1j	1	180	Alive on ART
M	28	14	29/10/2012	06/07/2020	24/01/2013	04/10/2020	5i	2	90	Alive on ART
F	82	46	29/10/2012	06/07/2020	24/04/2013	02/01/2021	1j	1	180	Alive on ART
F	44	32	03/11/2012	10/07/2020	28/01/2013	08/10/2020	1e	1	90	Alive on ART
F	35	8	01/11/2012	08/07/2020	26/01/2013	06/10/2020	4j	1	90	Alive on ART
F	50	46	05/09/2012	13/05/2020	30/02/2013	09/11/2020	1j	1	180	Alive on ART
F	50	19	03/11/2012	10/07/2020	28/01/2013	08/10/2020	1j	1	90	Alive on ART
F	29	14	06/11/2012	13/07/2020	01/02/2013	11/10/2020	4j	1	90	Alive on ART
M	74	37	08/11/2012	15/07/2020	04/02/2013	14/10/2020	1j	1	90	Alive on ART
F		19	27/10/2012	04/07/2020	22/04/2013	31/12/2020	1e	1	180	Alive on ART
F	46	36	26/08/2012	04/05/2020	21/02/2013	31/10/2020	1j	1	180	Alive on ART
M	32	20	16/10/2012	23/06/2020	11/01/2013	21/09/2020	5j	2	90	Alive on ART
F	15	4	13/11/2012	20/07/2020	08/02/2013	18/10/2020	4g	1	90	Alive on ART
F	45	26	13/11/2012	20/07/2020	08/02/2013	18/10/2020	1e	1	90	Alive on ART
M	65	36	14/11/2012	21/07/2020	09/05/2013	17/01/2021	1j	1	180	Alive on ART
M	75	38	14/11/2012	21/07/2020	09/02/2013	19/10/2020	2f	2	90	Alive on ART
F	58	32	02/11/2012	09/07/2020	27/04/2013	05/01/2021	1e	1	180	Alive on ART
F	67	41	30/10/2012	07/07/2020	25/01/2013	05/10/2020	1j	1	90	Alive on ART
M	93	48	16/11/2012	23/07/2020	11/02/2013	21/10/2020	2f	2	90	Alive on ART
F	65	35	16/11/2012	23/07/2020	11/05/2013	19/01/2021	1e	1	180	Alive on ART
M	71	38	11/10/2012	18/06/2020	06/04/2013	15/12/2020	1j	1	180	Alive on ART
M	61	61	15/10/2012	22/06/2020	10/04/2013	19/12/2020	1j	1	180	Alive on ART
F	52	24	18/10/2012	25/06/2020	13/04/2013	22/12/2020	1j	1	180	Alive on ART
M	87	50	19/10/2012	26/06/2020	14/04/2013	23/12/2020	1j	1	180	Alive on ART
F	60	38	29/10/2012	06/07/2020	24/04/2013	02/01/2021	1j	1	180	Alive on ART
M	56	33	30/10/2012	07/07/2020	25/04/2013	03/01/2021	1j	1	180	Alive on ART
M	79	29	02/11/2012	09/07/2020	27/04/2013	05/01/2021	1j	1	180	Alive on ART
F	14	8	20/11/2012	27/07/2020	15/02/2013	25/10/2020	5e	2	90	Alive on ART
M	13	3	21/11/2012	28/07/2020	16/02/2013	26/10/2020	4g	1	90	Alive on ART
F	70	42	11/10/2012	18/06/2020	06/04/2013	15/12/2020	1j	1	180	Alive on ART
M	75	49	13/10/2012	20/06/2020	08/04/2013	17/12/2020	1j	1	180	Alive on ART
M	57	38	18/10/2012	25/06/2020	10/03/2013	19/11/2020	2f	2	150	Alive on ART
F	24	8	04/12/2012	10/08/2020	29/02/2013	08/11/2020	4j	1	90	Alive on ART
F	57	37	05/12/2012	11/08/2020	18/04/2013	27/12/2020	1e	1	150	Alive on ART
M	24	10	23/11/2012	30/07/2020	15/03/2013	24/11/2020	4j	1	120	Alive on ART
F	80	34	24/09/2012	01/06/2020	19/03/2013	28/11/2020	1j	1	180	Alive on ART
M	61	21	25/09/2012	02/06/2020	20/03/2013	29/11/2020	1j	1	180	Alive on ART
M	59	40	26/09/2012	03/06/2020	21/03/2013	30/11/2020	1j	1	180	Alive on ART

Healthcare Facility 2 (sample)

Weight	Age	Next_visit_Date_GC	ARVRegimen	Regimens Lin	ARTDose Days	FollowUp Status	ARTStartDate_GC
46	32	25/01/2021	1j	1	180	Alive on A	16/11/2017
86	36	26/05/2021	1j	1	180	Alive on A	28/11/2019
78	34	26/12/2020	1j	1	180	Alive on A	06/10/2017
74	38	20/12/2020	1j	1	90	Alive on A	13/08/2019
75	47	26/11/2020	2f	2	90	Alive on A	22/08/2018
59	34	24/11/2020	1j	1	90	Alive on A	18/12/2019
48	23	22/12/2020	1j	1	180	Alive on A	07/07/2017
36	14	31/12/2020	1j	1	90	Alive on A	28/12/2018
45	37	06/01/2021	1j	1	180	Alive on A	06/07/2017
60	38	03/05/2021	1j	1	180	Alive on A	16/10/2017
37	15	14/01/2021	1j	1	90	Alive on A	29/01/2018
63	36	01/05/2021	1j	1	180	Alive on A	17/05/2019
50	39	06/12/2020	1j	1	180	Alive on A	31/07/2017
51	29	25/05/2021	1j	1	180	Alive on A	15/03/2017
33	12	24/12/2020	4i	1	90	Alive on A	26/12/2018
56	31	16/01/2021	1j	1	180	Alive on A	12/07/2019
52	36	04/04/2021	1j	1	180	Alive on A	21/03/2017
56	49	04/05/2021	1j	1	180	Alive on A	14/09/2018
57	29	24/12/2020	1j	1	180	Alive on A	24/06/2019
69	29	05/04/2021	1j	1	180	Alive on A	04/01/2018
83	52	17/05/2021	1j	1	180	Alive on A	07/03/2018
70	49	29/11/2020	1j	1	90	Alive on A	11/11/2019
75	23	28/04/2021	1j	1	180	Alive on A	25/07/2018
53	32	29/12/2020	1j	1	180	Alive on A	02/07/2018
58	39	18/04/2021	1j	1	180	Alive on A	08/04/2019
66	37	13/04/2021	1j	1	180	Alive on A	25/03/2019
27	9	19/01/2021	4i	1	90	Alive on A	12/09/2017
50	45	27/02/2021	1j	1	180	Alive on A	19/03/2019
49	31	23/01/2021	1j	1	180	Alive on A	25/06/2018
18	7	24/01/2021	4g	1	90	Alive on A	16/05/2019
18	6	14/01/2021	4g	1	90	Alive on A	21/10/2019
56	28	23/12/2020	1j	1	180	Alive on A	05/06/2019

ANNEXURE 46: ETHIOPIAN NATIONAL ART FOLLOW-UP HEALTHCARE FACILITY LEVEL (SAMPLE FORM)

HIV CARE/ART FOLLOW-UP FORM MINISTRY OF HEALTH

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MINISTRY OF HEALTH-ETHIOPIA

Facility Name _____ Name: _____ Age _____years (Months for Children <5 years)

Sex ☐ M F ☐ _____Address: Region_____ Woreda/Sub city_____ Kebele_____ House No._____Telephone _____

Patient Card No_____ Unique ART No. _____ Date confirmed HIV+ (Retesting): _____/_____/_____(DD/MM/YY)

Type of HIV Test ☐ Rapid HIV tests ☐ DNA/PCR (for children) Client readiness: (date client is ready)_____/_____/_____(DD/MM/YY) Height (Adult) in cm: _____

S/US	Follow up date dd/mm/yy	Months on ART	Weight (Kg) Edema+/-	BMI (MUAC for pregnant woman or bedridden)	Pregnancy status / FPmethod	Functional Status W,A,B	WHO Stage (1-4) T1- T4	TB Screen - P/N	Xpert-MTB/RIF(1) / LF-LAM(2) Sent	Xpert-MTB/RIF(1) / LF-LAM(2) Result P/N	TB Treatment / TB Prophylaxis	Dispense Dose (TPT drugs)	Adherence for TPT (G,F,P)	Side effect for TPT drugs (see side effect at back 1-15)	Cx Ca screening & Treatment: Type of Cx Ca Screening (0-7)	Cx Ca screening & Treatment: Management of cervical lesions (0-5)	Oisi HIV related cancers	Assessed & Managed for pain	CD4 /mm^3 or % if < 5 Yrs.	VL result (copies/ml)	Hgb. ALT/ AST/ Cr/ CrAg	Co-trimoxazole Preventive therapy: Adherance (G,F,P)	Co-trimoxazole Preventive therapy: Dispense dose	Fluconazole preventive therapy(FPT) (Dispensed Dose)	Other medications / or nutritional supplements dispensed	Assess & counsel for ARV Adherence: Adherence (G,F,P)	Assess & counsel for ARV Adherence: Why Fair or Poor?	ARV drugs: Dispense Dose/ code	ARV drugs: Side effect	ARV drugs: Reason for change	Client sets HIV prevention plan: Disclosure for Children	Enrolled to DSD Model (DD/MM/YY)	Type of DSD(write code 1-10)	Next Visit Date dd/mm/yy

HIV CARE/ART FOLLOW-UP FORM MINISTRY OF HEALTH

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MINISTRY OF HEALTH-ETHIOPIA

S/US

S=Scheduled US=Unscheduled

TB SCREEN

SCREENFOR TB AT EVERYVISIT
Adult Adolescent
1. Current Cough?
2. Fever?
3. Night sweats.
4. Weight loss?
P=(Positive screen)-Yes to any of the above---Evaluate for TB.
N= (Negative screen)- No to all the questions above---assess for IPT eligibility
Children0-14years old
1. Current Cough?
2. Fever?
3. Weight loss or poor weight gain?
4. Contact history with TB patient?
P=(Positive screen)-Yes to any one of the four---evaluate for TB
N=(Negative screen)-No to all four---assess for eligibility to IPT
Xpert MTB/ RIF (1)
P= Positive N= Negative
LF LAM (2)
P= Positive N= Negative

TB PROPHYLAXIS TREATMENT

6H1-6=Currently on INH prophylaxis (Number refers to months on 6H)
6H-C=Completed treatment
6H- DC=discontinued for any reason
3HP1-3=Currently on 3HP prophylaxis (Number refers to months on 3HP)
3HP-C=Completed treatment
3HP- DC=discontinued for any reason
TB RX1-6=Currently on Anti-TB(numbers refer to months on Rx)
TB RXDC=discontinued TB Rx for any reason
TB Rx C=Completed anti TB Rx

OI/ Opportunistic Cancers

NOI=No OI or Opportunistic cancer
Z=Zoster
BP=Bacterial Pneumonia
PTB=Pulmonary Tuberculosis
EPTB=Extra pulmonary tuberculosis
TO= Thrush oral
EC=esophageal candidiasis
UM=ulcers-mouth
DC or DA=Diarrhea Chronic/Acute
PCP=Pneumocystispneumonia
CT=CNS Toxoplasmosis
CM=Cryptococcal Meningitis
NHL=Non Hodgkins Lymphoma
KS=Kaposi's Sarcoma
CCa=Cervical cancer
O=Other

Months on ART

Duration in months since initiation of ART:
0=ART Initiation date
1week=1 week
2weeks=2 weeks
3weeks=3 weeks
1= 1 month
2=2 months
If not started on ART (Pre-ART) leave this column blank

Pain Assessment &Management

Assess for Pain &Manage as
N|P= No pain
S1= WHOStep1
S2= WHOstep2
S3= WHOstep3

Nutritional Status (adults)

BMI (wt/(ht2)) (for non-pregnant/non postpartum)
1= Normal(18.5-24.99kg/m2)
2= Mild (17-18.49kg/m2)
3=Moderate malnutrition (16-16.99kg/m2)
4=Severe malnutrition (<16kg/m2)
5=Over weight (25-29.99 kg/m2)
NB: write the codes (1,2,3,4 or 5)

MUAC (for pregnant/ postpartum /bedridden)
1= Normal (>23cm)
2=Moderate malnutrition (19-23cm)3=-Severe malnutrition (<19cm for pregnant and postpartum /<18cm for bedridden)

ADHERENCE

Estimate adherence using the table below:

Adherence	%	# Missed doses	
G (Good)	≥95%	(of 30 doses) <2 doses	of 60 doses) ≤3 doses
F (Fair)	85-94%	2-4doses	4-9 doses
P (Poor)	<85%	≥5 doses	≥10 doses

If Fair or Poor adherence, in why column note reason:
1. Toxicity/ Side effects
2. Share with others
3. Forgot
4. Felt better
5. Too ill
6. Stigma, discloser
7. Drug stock out
8. Lost/ ran out of pills
9. Delivery/ travel problems
10. In ability to pay
11. Alcohol
12. Depression
13. Other

Pregnancy Status/Family PlanningMethod

P=Pregnant(If pregnant, give estimated due date(EDD))
PMTCT=Referred to PMTCT &indicate linkage
WP=want to become pregnant
No FP=not pregnant& is not using any FP methods
FP=On Family Planning (enter code):
1=Condoms
2=Oral contraceptive pills
3=Injectable
4= Implant
5=Intrauterine device
6=Vasectomy/ tubal legation
7=Abstinence(no sex)

Length / height/ HC

Measure length/height in cm for children younger than14 years at EVERY visit.
Measure head circumference In cm for children younger Than 3 years of age at EVERY visit

Nutritional Status(Children)

W/H
1=Normal/ Appropriate (> -1Z-score)
2=Mild(<-1and> -2Z-score)
3=MAM- Moderate Acute Malnutrition (<-2and>-3 Z-score)
4=SAM-Severe Acute Malnutrition(<-3Z-score)

SIDE EFFECTS

1. No side effects
2. Nausea
3. Diarrhea
4. Fatigue
5. Headache
6. Numbness/tingling/pain
7. Rash
8. Anemia
9. Abdominal pain
10. Jaundice
11. Fat changes
12. Dizzy, anxiety, nightmare, depression
13. Other

REASONS FOR REGIMEN CHANGE

1. Toxicity/ Side effects
2. Due to new TB
3. New drug available
4. Drug stock out
5. Clinical failure
6. Immunologic failure
7. Virologic failure
8. Other

Cervical Cancer Screening& Treatment

Type of Cx Ca Screening result (0- 6):
0. Cx Ca screening not done
1. HPV Negative
2. HPV Positive
3. VIA Negative
4. VIA Positive: eligible for Cryo
5. VIA Positive: Non-Eligible for Cryo
6. Suspicious for Cervical Cancer
7.Referred for screening

Management of cervical lesions (0-4)
0. No treatment / further evaluation & management service given
1. Cryotherapy
2.Thermal ablation treatment
3.LEEP service
4. Further evaluation & management service given to Suspicious for Cervical Cancer
5.Referred

Functional status

W=Working(able to perform usual work in or out of the house, harvest, go to school or, for children, normal activities or playing)
A=Ambulatory (able to perform activities of daily Living)
B=Bedridden (not able to perform activities of daily living)

DEVELOPMENTAL MILESTONES FOR CHILD

A=Appropriate:
Sitting without support 3 to9months
Standing with assistance.....9to 11months
Hands and knees crawling 6 to1 3months
Walking with assistance .....7 to14 months
Standing alone.....8 to17 months
Walking alone..... 9 to18 months
Delay: Failure to attain milestones for age
Regression: Loss of what has been attained for age

Nutritional Status(Older children &adolescents)

BMI for age(5-18yrs)
1=Normal/appropriate (>-1Zscore)
2=Mild(<-1and> -2Zscore)
3=Moderate malnutrition(<-2and>-3Zscore)
4=Severe malnutrition(<-3Zscore)
*BMI forage for older children and adolescents.

REASONSFOR STOPPINGREGIMEN

1. STOP=Stopped ART
2. If STOP, In why column, note reason:
3. Toxicity/side effects
4. Treatment failure
5. Poor adherence
6. Illness, hospitalization
7. Drugs out of stock
8. Patient lack finances
9. Other patient decision
10. Other

VIRAL LOAD

Mark "" under VL column when requested/ specimen collected,
Write the amount and interpret as Suppressed- if the viral load is< 50 copies per mL Low level viremia: if viral load is between 50 and 1000 copies per ml and High Viral Load - if the viral load is >1000 copies per ml for clinical intervention

Client readiness

Enter the date (dd/mm/yy) client is ready for ART initiation when client is counseled, adherence barriers addressed and client is willing to start ART
Client Set HIV Prevention Plan
D =Agreed to Disclose to partner/family/friend,
PT= Agreed to bring partner for testing
ChT=agreed to bring children for testing,
SSex=discussed &agreed to practice safer sex
SubU=Decides to avoid or decrease Substance use
ASS=Assessed for STI
SRX=client managed for STI
For children Fill in stage of HIV disclosure
DS0 = No disclosure
DS1=Satge1, about the illness, taking medicine, keeping healthy,
DS2=Stage2, about germs, body soldiers,
DS3=Stage3, use of terms like CD4, Viral Load, HIV

DISPENSE DOSE/ REGIMEN CODE

ADULT FIRST LINE	CHILD FIRST LINE
1d = AZT - 3TC - EFV 1e = TDF - 3TC - EFV 1g = ABC + 3TC + EFV 1j = TDF + 3TC + DTG 1K = AZT + 3TC + DTG 1i = Other specify	4d = AZT+3TC+EFV 4e = TDF+3TC+EFV 4f = AZT +3TC + LPV/r 4g = ABC + 3TC + LPV/r 4i = TDF + 3TC + DTG 4j = ABC + 3TC + DTG 4K = AZT + 3TC + DTG 4L = ABC + 3TC + EFV 4h = Other specify
ADULT SECOND LINE	**CHILD SECOND LINE**
2a= AZT +3TC +LPV/r 2f =AZT+3TC +ATV/r 2g=TDF + 3TC+LPV/r 2h= TDF + 3TC + ATV/r 2i= ABC + 3TC+ LPV/r 2j = TDF + 3TC + DTG 2k = AZT + 3TC + DTG 2l= Other specify	5a=ABC+3TC+LPV/r 5f=AZT + 3TC + LPV/r 5g=TDF + 3TC + EFV 5h=ABC + 3TC + EFV 5i= TDF + 3TC+LPV/r 5m= ABC+3TC+DTG 5n= AZT+3TC+DTG 5o= TDF + 3TC + DTG 5j= Other specify
ADULT THIRD LINE	**CHILD THIRD LINE**
3a = DRV/r+DTG+AZT+3TC 3b = DRV/r+DTG+TDF+3TC 3c=DRV/r+ABC+3TC+DTG 3e= DRV/r+TDF+3TC+EFV 3f= DRV/r+AZT+3TC +EFV 3d = Other specify	6c= DRV/r + DTG + AZT +3TC 6d = DRV/r + DTG +TDF+3TC 6f = DRV/r+DTG+ABC+3TC 6g= DRV/r +ABC+3TC+ EFV 6h= DRV/r +AZT+3TC+EFV 6e = Other specify

DSD CODE

1. 3MMD
2. ASM(6MMD)
3. FTAR
4. CAG
5. PCAD
6. DSD for Adolescent
7.DSD for KP
8.DSD for MCH
9.DSD for AHD
10.Others

In the follow-up date, in 2nd column if one of the options below applies, use raw next to the last visit to enter the appropriate information:
TO=Transfer out LOST=not seen since ≥1 month,3 months DROP= lost to follow-up for >3 months STOP= When the clinician stop ART for different reason and patient is on follow up DEAD

ANNEXURE 47: INFORMATION SHEET FOR PARTICIPANTS FOR STRATEGIES VALIDATION

REQUEST TO PARTICIPATE IN STRATEGIES VALIDATION

Ethics clearance reference number: HSHDC/977/2020

Research permission reference number (if applicable):

Date: November 28, 2023

Title: **Same-Day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS Care in Ethiopia**

Dear Prospective Participant

Participant Information Sheet

You are asked to participate in strategies validation for a research study conducted by "Kidanu Hurisa Chachu", a doctoral student at the University of South Africa (UNISA). If you have any questions or concerns about the research, please feel free to contact the researcher: 'Kidanu Hurisa Chachu' (Email: 67120369@mylife.unisa.ac.za, Tele: +251 922981258).

PURPOSE OF THE VALIDATION

The purpose of this study's strategies validation will be to confirm the clarity, acceptability, applicability, relevance, effectiveness, feasibility, sustainability, and achievability of strategies developed on same-day ART initiation, lost to follow-up tracing and viral suppression monitoring mechanisms that will enhance HIV/AIDS prevention, care, and treatment to achieve the 2030 sustainable development targets.

PROCEDURES

If you volunteer to participate in this study's strategies validation, you will be requested to participate as an evaluator and provide a score to validate the developed strategies via email-shared evaluation tools. Your evaluation response is confidential.

There are two rounds of strategies validation processes, which will be based on round one evaluation results.

Round one strategies validation: You will validate strategies using the round one evaluation tool, based on the provided validation criteria and descriptions. You'll use a Likert scale (ranging from 1 to 4): strongly disagree (1), disagree (2), agree (3), and strongly agree (4) to score the provided strategies evaluation tool. After you submit your

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round one evaluation score, the researcher will analyse and share the strategies that past this round one evaluation along with the round two strategies evaluation tool based on the results.

Round two strategies validation: Using the round two strategies evaluation tool, you will score the past strategies on a 10-point scale to finalise selections of strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms.

You will receive operationalised interim strategies for reference during the validation process. Should you need further clarification, you can reach out to the researcher via the provided email or phone number.

POTENTIAL RISKS AND DISCOMFORTS

The validation process will not impose any significant risk; there may be minimal discomfort that might be encountered for the time consumed during the review.

POTENTIAL BENEFITS TO PARTICIPANTS AND/OR TO SOCIETY

There will be no direct benefit that would be gained by participating in this strategies validation. However, the results of these strategies can contribute to the development of same-day ART initiation, viral suppression monitoring, and retention in HIV/AIDS care to achieve the 2030 global targets.

PAYMENT FOR PARTICIPATION

There will be no payment for experts participating in this validation process.

ETHICAL MEASURES

CONFIDENTIALITY

The researcher is responsible for ensuring confidentiality at any time. The completed data consent form and information sheet will be stored in a locked cabinet. Electronic copies of the data will be kept on a password-protected computer.

ANONYMITY

The researcher used code in data analysis and presentation, not the participant's identity.

PRIVACY

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Privacy was maintained by ensuring that the data collection was done by the researcher via email and that the code allocated to the response was known only to the researcher. This information will not be shared with anyone except the supervisor if requested.

PARTICIPATION AND WITHDRAWAL

You can choose whether to participate in this strategies validation or not. If you volunteer to participate in this validation, you may withdraw at any time. Do you agree to participate in this study? (Tick the options below based on your decision).

1. Yes, I will participate **2. No, I will not participate**

RIGHTS OF PARTICIPANTS

You have the full right to withdraw your consent at any time and discontinue participation without consequence. This study has been reviewed and received ethical clearance through the UNISA and Oromia Regional Health Bureau. If you have questions regarding your rights as a strategies validation expert, please contact the researcher of this study.

Should you have concerns about the way in which the research has been conducted, you may contact the researcher's supervisor Professor KA Maboe, maboeka@unisa.ac.za, +27(0)12 429 2393. Contact the Chairperson of the College Research and Ethics Committee at UNISA (CREC), Prof Khan, khankb@unisa.ac.za, +27(0) 12 429 6549 if you have any ethical concerns.

Thank you for taking time to read this information sheet. If you are willing to participate in this study, kindly complete the informed consent too as attached.

SIGNATURE OF PARTICIPANT

I have read the information provided for the strategies validation of the study as described here in. My questions have been answered to my satisfaction, and I agree to participate in this study.

Signature of the Participant _____ Date: _____

Signature of the Witness _____ Date: _____

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ANNEXURE 48: INFORMED CONSENT FORM FOR STRATEGIES VALIDATION

I, _____ (participant name), confirm that the person asking for my consent to take part in this research has told me about the nature, procedure, potential benefits, and anticipated inconvenience of participation in the strategies validation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study's validation of strategies for same-day ART initiation, lost to follow-up and viral suppression monitoring mechanisms.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of the study conducted on "Same-Day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS Care in Ethiopia" and strategies validation will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

Should you have concerns about the way in which the research has been conducted, you may contact my supervisors Professor KA Maboe, maboeka@unisa.ac.za , + 27(0)12 429 2393 and Contact the Chairperson of the College Research and Ethics Committee at UNISA (CREC) Professor Khan, khankb@unisa.ac.za, +27(0) 12 429 6549 if you have any ethical concerns.
I have received and signed copy of this informed consent to participate in validation of strategies.

Participant Name & Surname…… (please print)

Participant Signature……Date……

Researcher's Name & Surname: Kidanu Hurisa Chachu

Researcher's signature……Date: November 29, 2023

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ANNEXURE 49: INVITATION LETTER FOR STRATEGIES VALIDATION

Subject: Invitation to participate in strategies validation

Date: November 29, 2023

Dear Prospective Participant

My name is Kidanu Hurisa Chachu. I am a student pursuing a doctoral degree in public health at the University of South Africa. The title of my study is Same-Day Antiretroviral Therapy Initiation Status Associated with Viral Suppression and Retention in HIV/AIDS Care in Ethiopia. In my work experience in HIV as a monitoring and evaluation advisor, I have identified a lack of evidence on same-day ART initiation's impact on retention, viral suppression, and patient follow-up in Ethiopian healthcare facilities as a problem. The purpose is to investigate the same-day ART initiation status regarding viral suppression and retention of patients in HIV/AIDS care at the healthcare facility level. The significance of my study is to assist policy designers at the federal level, experts at the regional level, and healthcare providers at the healthcare facility level to understand and address factors related to same-day ART initiation, the benefits and challenges related to same-day ART initiation in Ethiopia's healthcare services. In that regard, I sincerely invite you to participate in the validation of strategies for same-day ART initiation, lost to follow-up tracing, and viral suppression monitoring mechanisms at the healthcare facility level in Ethiopia. You are invited to validate these strategies because you have been an expert in the HIV programme for more than five years and or hold a Masters of Public Health (MPH), Master of Science (MSc) in Nursing, Epidemiology, Medical Doctorate (MD), or a Doctor of Philosophy (PhD) in Public Health, Nursing, or Epidemiology.

As the principal investigator of this study, I have worked on strategies development, and I intend to develop strategies and request your feedback on the evaluation tool that you will be provided with. If possible, two rounds of validation might be requested from you. For further information, I have attached an information leaflet, an ethical clearance certificate received from the University of South Africa Research and Ethics Committee, approval to conduct the study from the Oromia Regional Health Bureau, a signed informed consent form, and interim strategies and their operationalisation. Your expertise and input would be invaluable in ensuring the effectiveness and practicality of these strategies within the healthcare facility in the Ethiopian context. Your participation will contribute significantly to advancing the developed strategies and their implementation for the country to achieve the global target of 2030.

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Hereby, you are kindly invited to complete the strategies evaluation tool and provide your feedback attached to this invitation letter in round one. For round two and final strategies validation, you will be communicated via email after the round one validation analysis and report. Your participation and insights will greatly enrich our strategies for success. Kindly note that you are free to contact my supervisor Professor KA Maboe, maboeka@unisa.ac.za, +27(0)12 429 2393, if you so wish regarding this invitation.

Thank you for your time and support

Warm regards,

Kidanu Hurisa

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ANNEXURE 50: ROUND ONE STRATEGIES EVALUATION TOOL

Code_____ (to be filled by the researcher)
Dear Participant
General instructions:

- Please answer Sections A and C in the space provided. Read the statement or question carefully to ensure understanding.
- Use section B to answer section C questions
- Kindly answer all socio-demographic questions and provide a score for all questions about your level of agreement with each statement about each strategy by inserting 1-4 in the column for response options under each evaluation criteria for strategies validation in Section C.
- Write comments about each strategy in the spaces provided.

Section A: Socio-demographic questions

Instructions:

- Answer all questions in this section and tick where applicable.
- Write a specific degree or qualification, occupation, and year of experience in the HIV programme in the remarks section.

S.N	Indicators	Options	Tick	Remarks (Write when applicable)
1	Gender	Male		
		Female		
2	Age	20-29		
		30-39		
		40-49		
		50-59		
		60-69		
3	Qualification	Doctoral Degree		
		Master Degree		
4	Organisation			
5	position			
6	Total years of work experiences in HIV programme			

Section B: Round one strategies validation criteria and description

Instructions:

- In round one strategies validation, you are expected to refer and use validation criteria and description.
- Based on the provided description, complete Section C.

Round one strategies validation criteria and description

S.N	Validation criteria	Description
1	Clarity	The strategy is easy and simple to understand.
2	Acceptability	The strategy will be practical and acceptable by ART programs and stakeholders.
3	Applicability	The scope and users of the strategy are clearly defined.
4	Relevance	The strategy is appropriate to enhance HIV prevention, care and treatment services.
5	Effectiveness	The strategy can support the countries to achieve 2030 target.
6	Feasibility	The practicality or possibility to be implemented within a given set of circumstances.
7	Sustainability	The capacity of a strategy to be maintained over time, considering its long-term impact on HIV care and treatment.
8	Achievability	The feasibility of successfully implementing and attaining the desired goals in HIV care and treatment.

Section C: Round one strategies evaluation tool

Instructions:

- Using the validation criteria provided under section B complete scoring for each strategies in the provided space.
- Use 1-4 scoring based on your decision (strongly disagree (1), disagree (2), agree (3), and strongly agree (4)) for each validation criteria.
- Write comments about each strategy in the spaces provided.

Round one strategies evaluation tool

S.N	*Interim strategies*	*Validation criteria for each strategies strongly disagree (1), disagree (2), agree (3) strongly agree (4)*									*Comments*
		Clarity (1-4)	*Acceptability (1-4)*	*Applicability (1-4)*	*Relevance (1-4)*	*Effectiveness (1-4)*	*Feasibility (1-4)*	*Sustainability (1-4)*	*Achievability (1-4)*	*Total*	
Strategies for same-day ART initiation											
1	**Strategy 1**: Patient knowledge and counselling										
2	**Strategy 2:** Patient readiness for same-day ART initiation										
3	**Strategy 3:** Enhanced information and education provision										
4	**Strategy 4:** In-depth counselling for patients										
5	**Strategy 5:** Monitoring and evaluation of performance										
6	**Strategy 6:** Reduction of lost to follow-up										
Strategies for lost to follow-up tracing											
7	**Strategy 7:** Enhance the capacity of case managers and adherence supporters										
8	**Strategy 8:** Central databases and digital systems development										
9	**Strategy 9**: Financial and food assistance for patients										

10	**Strategy 10**: Awareness campaigns for the community and patients										
11	**Strategy 11:** Capacity building for community and religious leaders										
12	**Strategy 12:** Creating automated reminding system through SMS										
Strategies for viral suppression monitoring mechanisms											
13	**Strategy 13:** Assigning focal person for viral load laboratory person										
14	**Strategy 14:** Enhancing ART clinic healthcare provider's regular capacity building										
15	**Strategy 15:** Improving healthcare providers counselling on viral load performance										
16	**Strategy 16:** Enhancing ART clinic healthcare provider responsibilities in HIV service provision										

General Comments:

_____
_____
_____
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_____

ANNEXURE 51: ROUND TWO MODIFIED INTERIM STRATEGIES VALIDATION EVALUATION TOOL

Code_____ (to be completed by the researcher)

Dear prospective evaluator,

Thank you for the round one evaluation and feedback. Your feedback from the round one evaluation is appreciated. In round one, all the strategies were above 78%, which indicated that all strategies in this round passed validation criteria as per the set of cut points above 75%. However, based on the provided comments, the researcher modified the interim strategies for your evaluation and to reach consensus. Please utilise the provided evaluation tool for validating strategies in round two for same-day ART initiation, tracing lost-to-follow-up cases, and monitoring viral suppression mechanisms.

Thank you for your time and support.

General instructions:

- For easy identification of changes made to this round's interim strategies, please refer to Section A.
- Further, in the evaluation tool, modifications made to this round's interim strategies were highlighted in red for your easy identification.
- Use section B to answer section C questions.
- Please give a score of 1-4 for each statement regarding your level of agreement with each strategy. Provide your comment within the appropriate column under each strategy.
- Utilise the modified interim strategies and their operational details provided alongside this evaluation tool (refer to Annexure 46).
- Additionally, share general comments below the table in the provided space.

Section A: Changes made in interim strategies for round two evaluation

Based on the comments given by participants, the strategies were modified as follows:

- Interim strategies 1, 2, and 4 were merged to form strategy 1.
- One new strategy was added to ensure ARV drug supply for same-day ART initiation service sustainability, now named Strategy 2.
- The previous interim strategy 10, which is now strategy 9, was modified by adding optimising disclosure alongside awareness creation.
- Previous interim strategy 13, which is now strategy 12, clarified that the assignment of a laboratory person was at the healthcare facility level.

Section B: Round two strategies validation criteria and description

Instructions:

- In round two strategies validation, you are expected to refer and use validation criteria and description.
- Based on the provided description, complete Section C.

Round two strategies validation criteria and description

S.N	Validation criteria	Description
1	Clarity	The strategy is easy and simple to understand.
2	Acceptability	The strategy will be practical and acceptable by ART programs and stakeholders.
3	Applicability	The scope and users of the strategy are clearly defined.
4	Relevance	The strategy is appropriate to enhance HIV prevention, care and treatment services.
5	Effectiveness	The strategy can support the countries to achieve 2030 target.
6	Feasibility	The practicality or possibility to be implemented within a given set of circumstances.
7	Sustainability	The capacity of a strategy to be maintained over time, considering its long-term impact on HIV care and treatment.
8	Achievability	The feasibility of successfully implementing and attaining the desired goals in HIV care and treatment.

Section C: Round two strategies validation evaluation tool

Instructions:

- Using the validation criteria provided under section B complete scoring for each strategies in the provided space.
- Use 1-4 scoring based on your decision (strongly disagree (1), disagree (2), agree (3), and strongly agree (4)) for each validation criteria.
- Write comments about each strategy in the spaces provided.

Round two strategies validation evaluation tool

S.N	*Modified interim strategies*	*Validation criteria for each strategies strongly disagree (1), disagree (2), agree (3) strongly agree (4)*									*Comments*
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	
Strategies for same-day ART initiation											
1	Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision										
2	Strategy 2: Ensure supplies for ARV and Other opportunistic Infections										
3	Strategy 3: Enhanced information and education provision										
4	Strategy 4: Monitoring and evaluation of performance										
5	Strategy 5: Reduction of lost to follow-up										
Strategies for lost to follow-up tracing											
6	Strategy 6: Enhance the capacity of case managers and adherence supporters										
7	Strategy 7: Central databases and digital systems development										
8	Strategy 8: Financial and food assistance for patients										

9	Strategy 9: Awareness campaigns for the community and patients to optimise disclosure										
10	Strategy 10: Capacity building for community and religious leaders										
11	Strategy 11: Creating automated reminding system through SMS										
Strategies for viral suppression monitoring mechanisms											
12	Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level										
13	Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building										
14	Strategy 14: Improving healthcare providers counselling on viral load performance										
15	Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision										

General Comments:

ANNEXURE 52: OPERATIONALISED INTERIM STRATEGIES FOR ROUND ONE VALIDATION

Dear Prospective participants,

- Kindly refer to the operationalised interim strategies for validation when completing the evaluation tool in round one validation.
- If you have any questions or need clarification, contact the researcher for clarification.

Interim strategies and their operationalisation

Strategies	Operationalisation
Strategy 1: Patient knowledge and counselling	Conduct regular sessions to educate patients about same-day ART, providing comprehensive information on its benefits, potential side effects, adherence, and the importance of consistent treatment.
Strategy 2: Patient readiness for same-day ART initiation	Implement a pre-assessment process to evaluate patient readiness, including mental and emotional preparation, ensuring they understand the same-day ART initiation process and are willing and able to start treatment on the same-day of diagnosis.
Strategy 3: Enhanced information and education provision	Develop easily understandable educational materials and disseminate information through various channels (leaflets, posters, and digital platforms) to ensure patients have access to accurate and comprehensive information about same-day ART initiation and its management.
Strategy 4: In-depth counselling for patients	Offer individualised counselling sessions, providing a deeper understanding of the treatment process, addressing concerns, and ensuring patients are emotionally supported and committed to same-day ART treatment adherence.
Strategy 5: Monitoring and evaluation of performance	Implement routine assessments to monitor the effectiveness of same-day ART initiation, evaluating patient progress, adherence rates, and the overall impact of interventions, and use this data to make informed improvements.
Strategy 6: Reduction of lost to follow-up	Develop and implement systems to promptly identify patients prior to being lost and reconnect with patients who miss appointments, ensuring continuous engagement in care and reducing the rate of lost follow-ups.
Strategy 7: Enhance the capacity of case managers and adherence supporters	Provide comprehensive training and continuous professional development for case managers and adherence supporters, equipping them with the skills to effectively assist patients in their treatment journey.

Strategy 8: Central databases and digital systems development	Establish centralised databases and digital systems to streamline patient data management, facilitating efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.
Strategy 9: Financial and food assistance for patients	Provide financial support and access to nutritional assistance programmes to alleviate socioeconomic barriers, ensuring patients have the means to afford treatment and maintain good health through proper nutrition in collaboration with partners.
Strategy 10: Awareness campaigns for the community and patients	Organise community-wide awareness campaigns through various media channels (TV, radio, community events) to reduce stigma, increase awareness about HIV, and encourage testing and treatment in sustainable ways.
Strategy 11: Capacity building for community and religious leaders	Conduct workshops or training for community and religious leaders, fostering partnerships to spread awareness and reduce stigma, while also providing ongoing support and resources for these leaders.
Strategy 12: Creating automated reminding system through SMS	Implement, test and refine an SMS reminder system linked to appointment schedules while educating both staff and patients on its utilisation and effective response for alerting systems in collaboration with telecommunication.
Strategy 13: Assigning focal person for viral load laboratory person	Design a specific individual accountable for viral load management, offering comprehensive training and resources, and ensuring continuous coordination between ART clinics and laboratories for effective execution and results utilisation.
Strategy 14: Enhancing ART clinic healthcare provider's regular capacity building	Establish regular training sessions for healthcare providers, integrating new research and guidelines into these programmes, and assessing the influence of capacity-building efforts on enhancing patient care for sustainable quality service provision.
Strategy 15: Improving healthcare providers counselling on viral load performance	Provide specialised training in viral load counselling, creating tailored scripts or guidelines for viral load discussions, and monitoring provider-patient interactions to ensure enhanced counselling outcomes for patients understanding of viral load benefit.
Strategy 16: Enhancing ART clinic healthcare provider responsibilities in HIV service provision	Establish and document clear, evolving responsibilities for each healthcare provider, regularly reviewing and updating these duties based on changing needs, and fostering clarity and accountability among the healthcare staff regarding their roles specific to HIV care and treatment.

ANNEXURE 53: ROUND ONE INTERIM STRATEGIES VALIDATION EACH EXPERTS EVALUATION RESULTS

HE1: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	3	4	4	4	4	4	4	31	3.9	97
2	Strategy 2	4	4	4	4	4	4	4	3	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	3	31	3.9	97
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
6	Strategy 6	4	4	4	4	4	4	3	4	31	3.9	97
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	4	4	4	32	4.0	100
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
12	Strategy 12	4	4	4	4	4	4	3	3	30	3.8	94
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE2: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	3	4	4	4	4	4	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	3	4	31	3.9	97
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	3	4	4	4	3	30	3.8	94
9	Strategy 9	3	4	3	4	4	3	4	4	29	3.6	91
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	3	4	4	4	4	4	3	4	30	3.8	94
12	Strategy 12	4	4	3	4	4	3	3	3	28	3.5	88
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	3	4	4	4	4	4	4	4	31	3.9	97
14	Strategy 14	3	3	3	3	3	3	3	3	24	3.0	75
15	Strategy 15	3	4	3	4	4	4	3	4	29	3.6	91
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE3: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Accepta bility (1-4)	Applicabi lity (1-4)	Relevan ce (1-4)	Effective ness (1-4)	Feasibilit y (1-4)	Sustaina bility (1-4)	Achieva bility (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	4	4	32	4.0	100
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	3	3	3	29	3.6	91
9	Strategy 9	4	4	4	4	4	3	3	3	29	3.6	91
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE4: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Accepta bility (1-4)	Applicabi lity (1-4)	Relevan ce (1-4)	Effective ness (1-4)	Feasibilit y (1-4)	Sustaina bility (1-4)	Achieva bility (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	3	3	30	3.8	94
3	Strategy 3	4	3	3	4	3	3	3	3	26	3.3	81
4	Strategy 4	3	3	3	4	3	3	4	4	27	3.4	84
5	Strategy 5	4	4	4	4	4	4	4	3	31	3.9	97
6	Strategy 6	4	4	3	4	4	3	3	4	29	3.6	91
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	3	4	3	3	3	3	27	3.4	84
8	Strategy 8	4	4	3	4	4	2	3	3	27	3.4	84
9	Strategy 9	4	4	3	4	4	2	2	3	26	3.3	81
10	Strategy 10	4	4	4	4	4	4	3	3	30	3.8	94
11	Strategy 11	4	3	4	4	4	3	2	3	27	3.4	84
12	Strategy 12	4	3	3	4	3	3	2	3	25	3.1	78
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	3	4	4	3	3	3	3	27	3.4	84
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	4	3	4	4	4	3	4	30	3.8	94

HE5: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	4	3	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	4	4	4	32	4.0	100
9	Strategy 9	4	4	4	4	3	4	4	4	31	3.9	97
10	Strategy 10	4	4	4	4	4	4	4	3	31	3.9	97
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	3	4	4	4	31	3.9	97
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE6: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	3	4	3	4	3	3	2	3	25	3.1	78
2	Strategy 2	3	3	3	4	3	2	2	3	22	2.8	69
3	Strategy 3	3	3	2	4	3	3	3	3	22	2.8	69
4	Strategy 4	3	3	4	4	4	3	3	3	27	3.4	84
5	Strategy 5	3	3	4	4	4	4	4	4	30	3.8	94
6	Strategy 6	2	3	3	3	3	4	2	2	22	2.8	69
Strategies for lost to follow-up tracing												
7	Strategy 7	2	3	3	3	3	2	2	2	20	2.5	63
8	Strategy 8	3	3	3	4	3	3	3	3	25	3.1	78
9	Strategy 9	3	3	2	4	2	1	1	1	17	2.1	53
10	Strategy 10	3	3	3	3	3	3	3	3	24	3.0	75
11	Strategy 11	3	3	4	2	2	2	2	1	19	2.4	59
12	Strategy 12	4	3	1	4	4	2	1	2	21	2.6	66
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	3	4	4	3	3	3	4	3	27	3.4	84
15	Strategy 15	4	4	3	4	4	4	3	3	29	3.6	91
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE7: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	3	3	3	3	3	2	3	3	23	2.9	72
2	Strategy 2	3	3	3	3	3	3	3	3	24	3.0	75
3	Strategy 3	3	3	3	3	3	3	3	3	24	3.0	75
4	Strategy 4	3	3	2	3	3	2	3	3	22	2.8	69
5	Strategy 5	3	3	3	3	3	3	3	3	24	3.0	75
6	Strategy 6	3	3	3	3	3	3	3	3	24	3.0	75
Strategies for lost to follow-up tracing												
7	Strategy 7	3	3	3	3	3	3	3	3	24	3.0	75
8	Strategy 8	3	3	3	3	3	3	3	3	24	3.0	75
9	Strategy 9	2	1	1	1	1	1	1	1	9	1.1	28
10	Strategy 10	3	3	3	3	3	3	3	3	24	3.0	75
11	Strategy 11	3	3	3	3	3	3	3	3	24	3.0	75
12	Strategy 12	3	3	3	3	3	3	3	3	24	3.0	75
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	3	3	3	3	3	3	3	3	24	3.0	75
14	Strategy 14	3	3	3	3	3	3	3	3	24	3.0	75
15	Strategy 15	3	3	3	3	3	3	3	3	24	3.0	75
16	Strategy 16	3	3	3	3	3	3	3	3	24	3.0	75

HE8: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	3	4	4	3	3	3	28	3.5	88
2	Strategy 2	4	4	3	4	4	4	3	4	30	3.8	94
3	Strategy 3	3	4	4	4	4	4	4	4	31	3.9	97
4	Strategy 4	4	4	3	4	4	3	3	3	28	3.5	88
5	Strategy 5	3	3	4	4	4	4	4	4	30	3.8	94
6	Strategy 6	4	3	3	3	4	4	4	4	29	3.6	91
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	3	4	4	4	31	3.9	97
8	Strategy 8	4	4	3	4	4	3	4	4	30	3.8	94
9	Strategy 9	4	4	4	4	4	3	4	4	31	3.9	97
10	Strategy 10	4	4	3	4	4	3	4	4	30	3.8	94
11	Strategy 11	4	4	3	4	4	3	4	4	30	3.8	94
12	Strategy 12	4	4	4	4	4	3	4	4	31	3.9	97
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	3	4	4	31	3.9	97
14	Strategy 14	4	4	3	4	4	3	4	4	30	3.8	94
15	Strategy 15	4	4	4	4	4	3	4	4	31	3.9	97
16	Strategy 16	4	4	3	4	4	3	4	4	30	3.8	94

HE9: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	3	4	4	4	31	3.9	97
2	Strategy 2	4	4	4	4	4	4	4	4	32	4.0	100
3	Strategy 3	4	4	4	4	3	4	4	4	31	3.9	97
4	Strategy 4	4	4	4	4	3	4	4	4	31	3.9	97
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	4	4	4	32	4.0	100
9	Strategy 9	3	3	3	3	2	2	2	3	21	2.6	66
10	Strategy 10	4	4	3	3	3	4	4	4	29	3.6	91
11	Strategy 11	4	4	3	3	3	3	4	4	28	3.5	88
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	4	4	4	4	4	4	4	32	4.0	100

HE10: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies: strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1 4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Average score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	3	4	4	4	3	4	4	30	3.8	94
3	Strategy 3	4	4	4	4	4	3	4	4	31	3.9	97
4	Strategy 4	4	3	4	4	4	4	4	4	31	3.9	97
5	Strategy 5	4	4	4	4	4	4	4	3	31	3.9	97
6	Strategy 6	4	4	4	4	4	3	4	3	30	3.8	94
Strategies for lost to follow-up tracing												
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	3	4	3	30	3.8	94
9	Strategy 9	4	4	4	4	3	2	2	3	26	3.3	81
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	3	4	31	3.9	97
12	Strategy 12	4	4	4	4	4	3	3	4	30	3.8	94
Strategies for viral suppression monitoring mechanisms												
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	3	4	4	31	3.9	97
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100
16	Strategy 16	4	3	4	4	4	4	3	4	30	3.8	94

ANNEXURE 54: MODIFIED INTERIM STRATEGIES AND THEIR OPERATIONALISATION FOR ROUND TWO STRATEGIES VALIDATION

Dear Prospective participants,

- Kindly refer to the operationalised modified interim strategies for validation when completing the evaluation tool in round two validation.
- If you have any questions or need clarification, contact the researcher for clarification.

Strategies	Operationalisation
Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision	Assess patients' understanding and readiness through structured assessments tool. Subsequently in-depth counselling sessions are conducted to address specific needs, gaps in knowledge, and provide tailored guidance and support. Regular follow-ups and support mechanisms are established to ensure ongoing assistance and reinforcement of information.
Strategy 2: Ensure supplies for ARV and Other opportunistic Infections	Conduct comprehensive inventory assessments, forecasting, and procurement processes. Reliable supply channels were established, supported by efficient storage and distribution plans. Continuous monitoring, emergency preparedness, quality control measures, and staff training were undertaken to ensure consistent access to ARV medications and related supplies. Regular reporting and evaluation facilitated adaptive improvements for sustained effectiveness.
Strategy 3: Enhanced information and education provision	Develop easily understandable educational materials and disseminate information through various channels (leaflets, posters, and digital platforms) to ensure patients have access to accurate and comprehensive information about same-day ART initiation and its management.
Strategy 4: Monitoring and evaluation of performance	Implement routine assessments to monitor the effectiveness of same-day ART initiation, evaluating patient progress, adherence rates, and the overall impact of interventions, and use this data to make informed improvements.
Strategy 5: Reduction of lost to follow-up	Develop and implement systems to promptly identify patients prior to being lost and reconnect with patients who miss appointments, ensuring continuous engagement in care and reducing the rate of lost follow-ups.
Strategy 6: Enhance the capacity of case managers and adherence supporters	Provide comprehensive training and continuous professional development for case managers and adherence supporters, equipping them with the skills to effectively assist patients in their treatment journey.

Strategy 7: Central databases and digital systems development	Establish centralised databases and digital systems to streamline patient data management, facilitating efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.
Strategy 8: Financial and food assistance for patients	Provide financial support and access to nutritional assistance programmes to alleviate socioeconomic barriers, ensuring patients have the means to afford treatment and maintain good health through proper nutrition in collaboration with partners.
Strategy 9: Awareness campaigns for the community and patients to optimise disclosure	Organise community-wide awareness campaigns through various media channels (TV, radio, community events) to reduce stigma, increase awareness about HIV/AIDS, and encourage testing and treatment in sustainable ways to optimise disclosure to partners and family.
Strategy 10: Capacity building for community and religious leaders	Conduct workshops or training for community and religious leaders, fostering partnerships to spread awareness and reduce stigma, while also providing ongoing support and resources for these leaders.
Strategy 11: Creating automated reminding system through SMS	Implement, test and refine an SMS reminder system linked to appointment schedules while educating both staff and patients on its utilisation and effective response for alerting systems in collaboration with telecommunication.
Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level	Design a specific individual accountable for viral load management, offering comprehensive training and resources, and ensuring continuous coordination between ART clinics and laboratories for effective execution and results utilisation.
Strategy 13: Enhancing ART clinic healthcare provider's regular capacity building	Establish regular training sessions for healthcare providers, integrating new research and guidelines into these programmes, and assessing the influence of capacity-building efforts on enhancing patient care for sustainable quality service provision.
Strategy 14: Improving healthcare providers counselling on viral load performance	Provide specialised training in viral load counselling, creating tailored scripts or guidelines for viral load discussions, and monitoring provider-patient interactions to ensure enhanced counselling outcomes for patients understanding of viral load benefit.
Strategy 15: Enhancing ART clinic healthcare provider responsibilities in HIV service provision	Establish and document clear, evolving responsibilities for each healthcare provider, regularly reviewing and updating these duties based on changing needs, and fostering clarity and accountability among the healthcare staff regarding their roles specific to HIV care and treatment.

ANNEXURE 55: ROUND TWO INTERIM STRATEGIES VALIDATION (EACH EXPERT'S EVALUATION RESULTS)

HE1: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	3	4	4	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	3	4	31	3.9	97
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	3	4	4	4	31	3.9	97
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	4	4	4	4	3	4	31	3.9	97
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	3	4	31	3.9	97
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	4	3	4	31	3.9	97
14	Strategy 14	4	4	3	4	4	4	4	4	31	3.9	97
15	Strategy 15	4	4	4	4	4	3	4	4	31	3.9	97

HE2: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	3	4	4	4	4	4	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	3	4	31	3.9	97
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	3	4	4	4	4	3	30	3.8	94
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	3	4	4	4	4	4	31	3.9	97
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	3	4	4	4	4	4	3	4	30	3.8	94
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	3	4	4	4	4	4	31	3.9	97
13	Strategy 13	4	4	4	4	4	4	3	4	31	3.9	97
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE3: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	4	4	32	4.0	100
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	3	3	4	4	3	3	4	28	3.5	88
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE4: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	3	4	3	30	3.8	94
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	3	4	4	3	30	3.8	94
5	Strategy 5	4	4	4	4	4	3	3	4	30	3.8	94
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	4	4	4	3	3	4	30	3.8	94
8	Strategy 8	4	4	4	3	4	3	3	3	28	3.5	88
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	3	4	3	4	4	3	29	3.6	91
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	3	4	4	4	4	4	31	3.9	97
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE5: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	4	4	32	4.0	100
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	3	4	4	3	30	3.8	94
5	Strategy 5	4	4	3	4	4	4	4	4	31	3.9	97
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	4	4	3	4	4	3	4	4	30	3.8	94
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE6: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	3	3	4	4	3	3	4	28	3.5	88
2	Strategy 2	4	4	3	4	3	3	2	3	26	3.3	81
3	Strategy 3	4	4	4	4	4	3	3	3	29	3.6	91
4	Strategy 4	4	4	4	4	3	4	4	4	31	3.9	97
5	Strategy 5	4	4	4	4	3	3	2	3	27	3.4	84
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	3	2	3	3	3	26	3.3	81
7	Strategy 7	4	4	4	3	3	3	3	3	27	3.4	84
8	Strategy 8	4	4	4	4	4	2	2	2	26	3.3	81
9	Strategy 9	4	4	2	4	4	3	3	2	26	3.3	81
10	Strategy 10	4	4	3	4	3	3	3	3	27	3.4	84
11	Strategy 11	4	4	2	3	4	3	3	3	26	3.3	81
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	3	3	4	30	3.8	94
14	Strategy 14	4	4	4	3	4	3	3	3	28	3.5	88
15	Strategy 15	3	4	3	4	3	4	4	4	29	3.6	91

HE7: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	3	4	4	31	3.9	97
2	Strategy 2	4	4	4	4	4	3	4	4	31	3.9	97
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
6	Strategy 6	3	3	4	3	3	4	3	3	26	3.3	81
7	Strategy 7	3	4	3	3	4	3	3	3	26	3.3	81
8	Strategy 8	2	1	1	1	1	1	1	1	9	1.1	28
9	Strategy 9	4	4	3	3	3	3	3	3	26	3.3	81
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	3	3	3	3	3	27	3.4	84
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE8: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	3	31	3.9	97
2	Strategy 2	4	4	4	4	4	4	3	4	31	3.9	97
3	Strategy 3	4	4	4	4	4	3	4	4	31	3.9	97
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	3	4	31	3.9	97
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	3	4	4	3	4	4	30	3.8	94
8	Strategy 8	4	4	4	4	4	4	4	4	32	4.0	100
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	3	4	4	3	30	3.8	94
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	3	3	4	4	4	30	3.8	94
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE9: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	4	4	4	32	4.0	100
3	Strategy 3	4	4	4	4	4	4	4	4	32	4.0	100
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	4	4	4	4	4	4	32	4.0	100
8	Strategy 8	3	3	3	3	2	2	2	3	21	2.6	66
9	Strategy 9	4	4	3	3	3	4	4	4	29	3.6	91
10	Strategy 10	4	4	3	3	3	3	4	4	28	3.5	88
11	Strategy 11	4	4	4	4	4	4	4	4	32	4.0	100
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	3	3	4	4	4	30	3.8	94
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

HE10: Strategies validation evaluation results

S.N	Interim strategies	Validation criteria for each strategies (strongly disagree (1), disagree (2), agree (3) strongly agree (4)										
		Clarity (1-4)	Acceptability (1-4)	Applicability (1-4)	Relevance (1-4)	Effectiveness (1-4)	Feasibility (1-4)	Sustainability (1-4)	Achievability (1-4)	Total	Arevarge score	%
Strategies for same-day ART initiation												
1	Strategy 1	4	4	4	4	4	4	4	4	32	4.0	100
2	Strategy 2	4	4	4	4	4	3	4	4	31	3.9	97
3	Strategy 3	4	4	3	4	4	3	4	4	30	3.8	94
4	Strategy 4	4	4	4	4	4	4	4	4	32	4.0	100
5	Strategy 5	4	4	4	4	4	4	4	3	31	3.9	97
Strategies for lost to follow-up tracing												
6	Strategy 6	4	4	4	4	4	4	4	4	32	4.0	100
7	Strategy 7	4	4	4	4	4	3	4	3	30	3.8	94
8	Strategy 8	4	4	4	4	4	3	4	3	30	3.8	94
9	Strategy 9	4	4	4	4	4	4	4	4	32	4.0	100
10	Strategy 10	4	4	4	4	4	4	4	4	32	4.0	100
11	Strategy 11	4	4	4	4	4	3	4	4	31	3.9	97
Strategies for viral suppression monitoring mechanisms												
12	Strategy 12	4	4	4	4	4	4	4	4	32	4.0	100
13	Strategy 13	4	4	4	4	4	4	4	4	32	4.0	100
14	Strategy 14	4	4	4	4	4	4	4	4	32	4.0	100
15	Strategy 15	4	4	4	4	4	4	4	4	32	4.0	100

ANNEXURE 56 : FINAL STRATEGIES AND THEIR OPERANALISATION

Final strategies	Operationalisation
Strategy 1: Assessed patient knowledge and readiness and in-depth counselling provision	Assess patients' understanding and readiness through structured assessments tool. Subsequently in-depth counselling sessions are conducted to address specific needs, gaps in knowledge, and provide tailored guidance and support. Regular follow-ups and support mechanisms are established to ensure ongoing assistance and reinforcement of information.
Strategy 2: Ensure supplies for ARV and other opportunistic infections	Conduct comprehensive inventory assessments, forecasting, and procurement processes. Reliable supply channels were established, supported by efficient storage and distribution plans. Continuous monitoring, emergency preparedness, quality control measures, and staff training were undertaken to ensure consistent access to ARV medications and related supplies. Regular reporting and evaluation facilitated adaptive improvements for sustained effectiveness.
Strategy 3: Enhanced information and education provision	Develop easily understandable educational materials and disseminate information through various channels (leaflets, posters, and digital platforms) to ensure patients have access to accurate and comprehensive information about same-day ART initiation and its management.
Strategy 4: Monitoring and evaluation of performance	Implement routine assessments to monitor the effectiveness of same-day ART initiation, evaluating patient progress, adherence rates, and the overall impact of interventions, and use this data to make informed improvements.
Strategy 5: Reduction of lost to follow-up	Develop and implement systems to promptly identify patients prior to being lost and reconnect with patients who miss appointments, ensuring continuous engagement in care and reducing the rate of lost follow-ups.
Strategy 6: Enhance the capacity of case managers and adherence supporters	Provide comprehensive training and continuous professional development for case managers and adherence supporters, equipping them with the skills to effectively assist patients in their treatment journey.
Strategy 7: Central databases and digital systems development	Establish centralised databases and digital systems to streamline patient data management, facilitating efficient tracking, monitoring, and analysis of patient information across healthcare facilities that also avoid duplications.

Strategy 8: Financial and food assistance for patients	Provide financial support and access to nutritional assistance programmes to alleviate socioeconomic barriers, ensuring patients have the means to afford treatment and maintain good health through proper nutrition in collaboration with partners.
Strategy 9: Awareness campaigns for the community and patients to optimise disclosure	Organise community-wide awareness campaigns through various media channels (TV, radio, community events) to reduce stigma, increase awareness about HIV/AIDS, and encourage testing and treatment in sustainable ways to optimise disclosure to partners and family.
Strategy 10: Capacity building for community and religious leaders	Conduct workshops or training for community and religious leaders, fostering partnerships to spread awareness and reduce stigma, while also providing ongoing support and resources for these leaders.
Strategy 11: Creating automated reminding system through SMS	Implement, test and refine an SMS reminder system linked to appointment schedules while educating both staff and patients on its utilisation and effective response for alerting systems in collaboration with telecommunication.
Strategy 12: Assigning focal person for viral load laboratory person at healthcare facility level	Design a specific individual accountable for viral load management, offering comprehensive training and resources, and ensuring continuous coordination between ART clinics and laboratories for effective execution and results utilisation.
Strategy 13: ART clinic healthcare provider's regular capacity building	Establish regular training sessions for healthcare providers, integrating new research and guidelines into these programmes, and assessing the influence of capacity-building efforts on enhancing patient care for sustainable quality service provision.
Strategy 14: Improved healthcare providers counselling on viral load	Provide specialised training in viral load counselling, creating tailored scripts or guidelines for viral load discussions, and monitoring provider-patient interactions to ensure enhanced counselling outcomes for patients understanding of viral load benefit.
Strategy 15: ART clinic healthcare provider responsibilities	Establish and document clear, evolving responsibilities for each healthcare provider, regularly reviewing and updating these duties based on changing needs, and fostering clarity and accountability among the healthcare staff regarding their roles specific to HIV care and treatment.

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SAME-DAY ANTIRETROVIRAL THERAPY INITIATION STATUS ASSOCIATED WITH VIRAL SUPPRESSION AND RETENTION IN HIV/AIDS CARE IN ETHIOPIA

by

KIDANU HURISA CHACHU

Submitted in accordance with the requirements for the degree of

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in

PUBLIC HEALTH

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROFESSOR KA MABOE

FEBURARY 2024

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TO WHOM IT MAY CONCERN

I, the undersigned, hereby confirm my involvement in the language editing and research methodology compatibility check for the thesis manuscript of **Mr Kidanu Hurisa Chachu (Student Number: 67120369)** submitted to me as part of his fulfilment of the requirement for the **Doctor of Philosophy (PhD) in Public Health** degree registered with the University of South Africa (UNISA), and entitled:

Same-day antiretroviral therapy initiation status associated with viral suppression and retention in HIV/AIDS care in Ethiopia

As an independent academic editor, I attest that all possible means have been expended to ensure the final draft of **Mr K.H. Chachu's** thesis manuscript reflects both acceptable research methodology practices and language competency standards expected of postgraduate research studies at his academic level.

In compliance with expected ethical requirements in research, I have further undertaken to keep all aspects of **Mr K.H. Chachu's** study confidential, and as his own individual initiative.

Sincerely.

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