EFFECTS OF VIOLENCE ON ADHERENCE TO ANTIRETROVIRAL THERAPY: THE CASE OF ADOLESCENTS LIVING WITH HIV IN LILONGWE, MALAWI

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DECLARATION AND APPROVAL

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This thesis is my original work and has not been submitted for a degree at any other university or for any other award.

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ABSTRACT

Background: Adolescents living with HIV (ALWHIV) face significant challenges to maintain ART adherence compared to other age groups in sub–Saharan Africa where HIV prevalence and violence are both high. In Malawi, evidence remains limited on how different forms of violence affect ART adherence among ALWHIV

Methodology: A cross-sectional mixed-methods study conducted in April 2025 among 190 ALWHIV aged 10–19 attending ART teen clubs in area 25, Baylor and Mtenthera health facilities in Lilongwe Malawi. Participants were selected through simple random sampling. Quantitative data were collected using Kobo Toolbox and analysed in SPSS v22. Chi-square test was used for bivariate analysis and multivariate logistic regression assessed associations between ART adherence and physical, emotional and sexual violence. Qualitative data from two focus group discussions and six key informant interviews were analysed thematically using NVivo.

Results: Among respondents, 56.3% (n=107) were females, only 54% attained optimal adherence, and 78% achieved viral suppression. Prevalence of emotional, sexual, and physical violence was 76.8%, 53%, and 30.5% respectively. Chi-square bivariate analysis showed associations between all types of violence and adherence were statistically significant ($p<0.05$). Multivariate logistic regression revealed that emotional violence was associated with 60% lower odds of adherence (OR = 0.40; 95% CI: 0.21–0.78; $p < 0.01$), and physical violence with 58.8% reduced odds (OR = 0.412; 95% CI: 0.20–0.87; $p = 0.019$). Missed clinic visits showed a negative trend but were not statistically significant. Qualitative data echoed these findings, linking violence to low self-esteem and poor adherence behavior. Adolescents were reluctant to report violence.

Conclusion: Emotional and physical violence are significantly associated with suboptimal ART adherence leading to high viral loads among ALWHIV. Routine screening for violence and enhanced clinical monitoring are recommended to improve ART outcomes and support progress towards HIV epidemic control.

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ABBREVIATIONS

AGYW:	Adolescent Girls and Young Women
AIDS:	Acquired immune deficiency syndrome.
ALWHIV:	Adolescents living with HIV
AMIU:	Amref International University
ART:	Antiretroviral Therapy
BIPAI:	Baylor College of Medicine International Paediatric AIDS Initiative
COVID-19:	Coronavirus Disease 2019
DHO:	District Health Officer
DREAMS:	Determined Resilient Empowered AIDS Free mentored and Safe
EDM:	Electronic drug monitoring device
FDC:	Fixed drug combination
FGD:	Focus group discussion
HIV:	Human Immunodeficiency Virus
HAART:	Highly active antiretroviral therapy
HSA:	Health Surveillance Assistance
IDI:	In Depth Interviews
IPV:	Intimate partner violence
IRB:	International Research Review Board
KII:	Key informant interviews
MEMS:	Medication event monitoring system
MDHS:	Malawi Demographic Health Survey
MPH:	Masters in Public Health

MPHIA:	The Malawi Population-based HIV Impact Assessment
MOH:	Ministry of Health
NHSRC:	National Health Sciences Research Committee
PEPFAR:	President's Emergency Plan for AIDS Relief
PTSD:	Post-Traumatic Stress Disorder
RA:	Research Assistant
SD:	Standard Deviation
SDG:	Sustainable Development Goals
SSA:	Sub-Saharan Africa
SPH:	School of Public Health
SRGBV:	School Related Gender-based Violence
STIs:	Sexually Transmitted Infections
SPSS:	Statistical Package of Social Scientists
UNAIDS:	United Nations Programme on HIV/AIDS
UNICEF:	United Nations Children's Fund
USAID:	United States Agency for International Development
USG:	United States Government
U=U:	Undetectable = Untransmittable
WHO:	World Health Organization

DEFINITION OF KEY TERMS

Adolescent:	A person who is going through the phase of life between childhood and adulthood, from ages 10 to 19. Adolescents experience rapid physical, cognitive and psychosocial growth. This affects how they feel, think, make decisions, and interact with the world around them (UNICEF, 2022)
Emotional violence:	This includes restricting a child's movements, denigration, ridicule, threats and intimidation, discrimination, rejection, belittling and other non-physical forms of hostile treatment (WHO, 2022).
High viral load:	Viral load result of equals to or above 1,000 copies/ml.
Low viral load:	Viral load results of less than 1,000 copies/ml or undetectable viral load results.
Optimal ART adherence:	High levels of ART medication adherence, equal or above 95% over the previous month.
Orphan:	A child or adolescent who has lost one or both parents to any cause of death

Physical violence:	This is the type of violence that results in physical harm like beating, slapping, punching from a caregiver, teacher, peer, stranger, or anyone (WHO, 2022)
Sexual violence:	This relates to any sexual act perpetrated by anyone against someone's will, this includes a completed sex act (rape) without consent, any attempted sex acts without consent, abusive sexual contact for example unwanted touching, as well as non-contact sexual abuse like unwanted looking or showing and online exploitation (UNICEF, 2022; WHO, 2022)
Suboptimal ART adherence:	Low levels of ART medication adherence, when an adolescent takes less than 95% of their ART over the previous month.
Violence:	According to World Health Organization (WHO, 2022), violence against adolescents is defined as the intentional use of physical force or power, threatened or actual, against an adolescent, that either results in or has a high likelihood of resulting in physical injury, illness, death or psychological harm. It includes physical, emotional and sexual violence, and it is a significant global health and human rights concern.

CHAPTER 1: INTRODUCTION

1.1 Overview

This chapter provided a detailed background to the problem, the problem statement, research questions, the broad objective, and specific objectives, justification for the study and its significance, the scope, limitations, and underlying assumptions.

1.2 Background Information for the Study

Significant strides have been made in Human Immunodeficiency Virus (HIV) epidemic control in the 21st century, and global statistics from United Nations Programme on HIV/AIDS (UNAIDS) 2024, shows approximately 1.3 million individuals were diagnosed with HIV in the year 2023; this is a 39% decline in new HIV infections since 2010 and a decline of 60% since the peak in 1995. Additionally, there has been a 69% reduction in AIDS-related deaths since the peak in 2004 (UNAIDS, 2024). These strides are in line with the Sustainable Development Goals (SDG) number 3.3, aiming at ending HIV and AIDS as a public health threat by the year 2030 (UNAIDS, 2022).

The World Health Organization (WHO) 2020, test-and-treat strategy has been key to the reduction of HIV incidence and AIDS-related mortality as it removes barriers on eligibility for antiretroviral therapy (ART) initiation among people living with HIV. This means that all people living with HIV, including children and adolescents, are eligible for antiretroviral therapy, regardless of their immunological status and clinical staging (World Health Organization, 2020, Girum et al., 2020).

Notwithstanding the worldwide decline in new HIV infections and AIDS-related fatalities, the UNAIDS 2023 report reveals that sub-Saharan Africa continues to be the focal point of the HIV epidemic, accounting for around 80% of the population of

individuals living with HIV/AIDS globally. Additionally, about two-thirds of the global new HIV infections happen in sub-Saharan Africa. Adolescents represent a big number of people living with HIV; approximately 1.7 million adolescents aged 10–19 years are living with HIV worldwide (UNAIDS, 2024). Sub-Saharan Africa hosts about 84% of all ALWHIV globally. The extraordinary scale-up of access to antiretroviral therapy (ART) for paediatrics around the world has contributed to more HIV-positive infants surviving into adolescence following perinatal infection over the past decades (Kranzer, et al., 2017, Rukuni, et al., 2020).

However, there is growing evidence that ALWHIV are not fully benefiting from gains in service provision resulting from global or national initiatives, necessitating a renewed focus on adolescents (UNAIDS, 2022).Violence, stigma, discrimination and harmful cultural practices are among the facilitators fuelling HIV acquisition and putting a barrier to access and uptake of HIV services, including ART adherence, making HIV continue to be a one of the main causes of death in sub-Saharan Africa, particularly among adolescents and young people (Agroia, et al., 2024). A systematic review of multination clinical trials conducted in US, Kenya Uganda, Nigeria Lesotho and Malawi indicated that late adolescence (15–19 years) is the only age group where HIV-associated mortality is rising, driven by poor adherence to ART, In both resourced and resource-limited settings, adherence, retention in care and rates of viral suppression are lower in adolescents when compared with adults or younger children (Enane et al., 2018, Foster et al., 2020).

In order to control the HIV epidemic, universal health care is essential, ensuring that no individual is left behind. Consequently, adolescents must be prioritised within the services to ensure their survival and well-being. Moreover, the overall vision for the

global HIV response is to reduce new infections, HIV-related deaths, and stigma and discrimination. To realise this vision, UNAIDS has put global HIV 95-95-95 targets to be achieved by 2030 and the targets state that 95% of people living with HIV should be aware of their HIV status, 95% of people aware of their positive HIV status should be initiated on ART, and 95% of people on ART should attain viral suppression.

Adherence to ART is a key determinant of a successful ART program. Optimal adherence to antiretroviral therapy (ART) is central to achieving viral suppression and positive health outcomes in people living with HIV. People with suppressed viral load can also reduce the risk of HIV transmission to uninfected individuals. Thus, ART adherence has become both an HIV treatment and an HIV prevention strategy (WHO, 2020, Saidi et al., 2021).

Considering that the benefits of ART are tied to optimal adherence, and that the gains can be reversed if adherence is not maintained, leading to the risk for development of opportunistic infection and death; the World Health Organization has recommended a strict lifelong treatment adherence of 95% and above to fully benefit from ART and avoid poor health outcomes (WHO, 2020, Tekle et al., 2024). Based on WHO (2016), ART adherence is defined as initiating HIV treatment, attending all medical appointments, and consistently taking HIV medications every day and precisely at the same time as prescribed, thus taking 95% to 100% of all prescribed ART correctly; this is also called optimal adherence. Suboptimal or poor adherence means taking less than 95% of the prescribed ART and may include missing pills or taking late doses, treatment interruptions and discontinuations, and partial dosing.

Suboptimal adherence to ART correlates directly with elevated mortality and morbidity in PLHIV, as inconsistent medication intake allows for viral replication, resulting in

disease progression, compromised immune function, and ultimately increased risk of complications and death. Despite efforts to improve and maintain adherence, suboptimal adherence to ART has attracted global significant concern, with adolescents exhibiting lower levels of adherence, as low as 62.3% only, against the WHO recommended target of 95% and above (Kim et al., 2014, Mokdad, 2016, United Nations International Children's Emergency Fund [UNICEF], 2022).

There is evidence that exposure to any form of violence increases the risk for ART non-adherence among adolescents living with HIV (Kim et al., 2017, Clum at al., 2025, Seunanden et al., 2025). Violence against children and adolescents is a significant public health concern globally, and a great infringement of human rights. The detrimental consequences of violence adversely affect children globally, influencing families, communities, and nations, and extending beyond generations. Violence compromises the health, dignity, security, and autonomy of its victims, yet it persists under a culture of silence (UNICEF, 2023).

Violence against children include all types of aggression, physical, emotional and sexual directed at those under 18 years of age, regardless of whether the perpetrators are parents, carers, peers, romantic partners, or strangers. (World Health Organisation, 2022) It is projected that more than half of all children worldwide, over 1 billion aged 2–17 years, have encountered physical, sexual, or emotional violence or neglect in the preceding year (WHO, 2022).

Sub-Saharan Africa experiences the highest levels of violence against youth compared to other regions (Hillis, 2020). Moreover, most adolescents in Eastern and Southern Africa encounter multiple violence forms within their familial, communal, and relational contexts. The effects of violence are more significant for teenagers with HIV

than for those without the virus (USAID, 2010, UNICEF, 2020). In Malawi, violence is equally prevalent, with a high rate of over 33% in children, adolescents and women (Khonje-Mvula et al., 2021). Both adolescent boys and girls experience violence based on UNICEF's (2021) situational analysis for vulnerable children. The analysis results showed that one in five adolescent girls and one in seven adolescent boys reported experiencing at least one incidence of sexual abuse before turning the age of 18 years.

In Malawi, adolescent girls are more susceptible to sexual violence, whilst adolescent boys are more prone to physical violence. Childhood or recent experiences of sexual and emotional violence correlate with psychological suffering in adolescents and young adults; the effects reduce self-value self-esteem and may affect the zeal to take ART medication, thus jeopardising the success of treatment and leading to overall poor health outcomes (Agyei-Baffour et al., 2020).

In order to ensure focused attention to adolescents on ART and to advance treatment outcomes among ALWHIV, the Malawi Ministry of Health is implementing an antiretroviral treatment delivery model for adolescents in health facilities called "Teen Clubs. These are monthly or quarterly ART clinics for adolescents aged 10-19 years old designated for provision of ART medication, provision of clinical services and psychosocial peer support on Saturdays in order to ensure ART access to adolescents outside their school schedules and to have detailed attention to teens. Only adolescents who have had full disclosure of their HIV status are the ones eligible for enrolment in teen clubs (McBride et al., 2019, MoH, 2021). Despite these efforts, adolescents in Malawi still experience poor ART outcomes due to suboptimal adherence (Kip et al., 2022). Considering high rates of suboptimal adherence and violence among

adolescents, this study sought to determine the effect of violence on adherence to ART among adolescents living with HIV in Lilongwe, Malawi.

1.3 Statement of the Problem

Adherence to antiretroviral therapy remains low among adolescents living in sub-Saharan Africa, despite the implementation of multiple interventions on adherence improvement among this priority population. According to Hlophe et al. (2023), if adolescents are lagging in HIV care and adherence, attainment of UNAIDS 2030 targets of ending HIV/AIDS may not be realised.

Research shows that exposure to any form of violence increases the risk for ART non-adherence among adolescents living with HIV (Kim at al., 2017, Clum at al., 2025, Seunanden et al., 2025. Violence has also shown to recently increase in prevalence in the world, with Africa being the most affected (WHO, 2022). Evidence from Mzantsi wakho study in South Africa showed that exposure to any form of violence increases the risk for ART non-adherence among adolescents living with HIV (Cluver et al., 2023).

In Malawi, adolescents living with HIV, already burdened by poverty, abuse, and stigma, may face additional challenges due to violence, potentially affecting their adherence to ART. ALWHIV who experience violence tend to have low aspirations, poor goals and a sense of failure (Betancourt et al., 2013, Khangamwa, 2020, Inman et al., 2024). Although few studies have explored the effect of violence on ART adherence, most of these studies were conducted in women and girls but also mainly outside Malawi. The results may not be applicable in a Malawi context considering the differences in culture norms, social economic aspect and target population.

Considering that both adolescent boys and girls suffer violence and are both lagging in ART adherence in Malawi, understanding the association of violence to ART adherence among Malawian adolescents is essential. This study aimed to assess the effect of different forms of violence on ART adherence among adolescents in Lilongwe, Malawi.

1.4 Research Questions

1. What is the rate of adherence among adolescents living with HIV and AIDS in select facilities in Lilongwe, Malawi?
2. What is the prevalence of violence among adolescents living with HIV attending select facilities in Lilongwe, Malawi?
3. What is the association between different forms of violence (emotional, physical and sexual violence) and adherence to antiretroviral therapy among adolescents living with HIV in select facilities in Lilongwe, Malawi?

1.5 Research Objectives

1.5.1 General Objective

To determine the effect of violence on adherence to antiretroviral therapy among adolescents living with HIV attending ART clinics in select facilities in Lilongwe, Malawi.

1.5.2 Specific Objectives

1. To determine the rate of ART adherence among adolescents living with HIV attending select facilities in Lilongwe, Malawi.
2. To determine the prevalence of violence among adolescents living with HIV in select facilities in Lilongwe, Malawi.

3. To examine the association between physical, emotional, and sexual violence and ART adherence among adolescents living with HIV attending select health facilities in Lilongwe, Malawi.

1.6 Justification of the Study

Non-adherence to antiretroviral therapy increases the risk of drug resistance and contributes to ART treatment failure, escalating morbidity and mortality rates (Agyei-Baffour et al., 2023). Given that ART is also used for prevention, ensuring viral suppression among adolescents, it is crucial for reducing the risk of infecting their peers.

Epidemiological studies show that as the number of people with viral suppression rises in a community, new HIV transmissions decrease. The Undetectable = Untransmittable (U=U) concept states that individuals maintaining an undetectable level of viral load cannot transmit the virus sexually. Attaining viral suppression, especially among adolescents, aligns with the global agenda of ending HIV and AIDS as a public health threat by 2030 (UNAIDS, 2022).

There is a gap in science on how different types of violence are associated with suboptimal adherence to ART among ALWHIV in Lilongwe, Malawi. This study was s essential as it filled that gap of knowledge. The results obtained may guide ART clinics and teen club staff in developing innovative interventions aimed at identifying and reducing violence and mitigating its effects to ensure ALWHIV attain high adherence levels and have improved quality of life, ultimately contributing to ending HIV transmission and achieving the Sustainable Development Goals 2030.

1.7 Significance of the Study

This study provided an in-depth understanding of the association between multiple forms of violence and HIV outcomes among adolescents in Malawi. The findings make a contribution to a comprehensive understanding of this public health issue and informs the development of appropriate prevention and response efforts (Merrill et al., 2024). Beyond examining individual experiences of violence, the study assessed the cumulative effects of violence on ART adherence, offering insights into whether HIV care approaches should be tailored based on the type of violence experienced.

Prior to this study, no research had been conducted in Lilongwe, Malawi, to examine the combined effects of different forms of violence; physical, emotional, and sexual on ART adherence among adolescents living with HIV (ALWHIV). This research filled that gap by analysing the impact of these intersecting forms of violence on adherence behaviours. The study contributes to the body of scientific knowledge on violence and ART adherence among adolescents in Malawi. The dissemination of findings at local and international conferences has the potential to inform the development of new interventions aimed at improving ART adherence among adolescents.

Additionally, the study advocates for routine screening for violence and the implementation of targeted interventions for adolescents experiencing adherence challenges in teen clubs and general ART clinics across Malawi. These findings also have broader implications, with potential benefits for HIV care programs in other regions of Africa.

1.8 Scope of the Study

This study was self-sponsored by the researcher and examined the association between violence and ART adherence among ALWHIV attending ART clinics in three ART facilities, namely Baylor, Area 25, and Mtenthera in Lilongwe, Malawi. Data collection using mixed methods took place between 14 to 26 April 2025, and analysis and the full dissertation were completed by the end of April 2025.

The study title was edited to a bit from the initial title: "*Association between violence and adherence to antiretroviral therapy; The case of HIV infected adolescents in Lilongwe Malawi"* to "*The effect of violence on adherence to antiretroviral therapy: A Case of adolescents living with HIV in Lilongwe, Malawi"*. Thus, the phase "HIV infected adolescents" was replaced with "Adolescents living with HIV". This change was made to align with the UNAIDS guidance on language that came after the study proposal had already been submitted. UNAIDS (2025) calls for people first language and to recognize people first before the disease thus the adolescents living with HIV are preferred than HIV infected is seen as labelling. Additionally, the first part of the study title: *"Association between violence and adherence to antiretroviral therapy"* was replaced with *"The effect of violence on adherence to antiretroviral therapy"* following final comments from the board during the defense, on Jun 12,2025

1.9 Assumptions of the Study

1.9.1 Study Assumptions

The study assumes the following:

Truthfulness of Self-Reported Data: the study assumed that participants would provide honest and accurate information regarding their experiences with violence,

their HIV status, and their adherence to ART, despite the sensitive and potentially stigmatizing nature of these topics.

Consistent Understanding of "Violence": It assumed that participants would share a common understanding of what constitutes "violence" as defined and explored in this study, aligning with the operational definition used in the research instruments.

Adolescents' Capacity to Respond: It was assumed that the adolescent participants had the cognitive and emotional maturity to comprehend the study questions and to accurately recall and articulate their experiences with violence and ART adherence.

Accessibility of ART: The study also assumed that the availability of ART medication was generally consistent and accessible to the adolescent population within the study setting, implying that adherence challenges were more directly related to factors like violence, rather than systemic supply issues.

Ethical Conduct and Confidentiality: It was assumed that all ethical protocols regarding informed consent/assent, confidentiality, and participant safety (especially concerning disclosures of violence) are strictly adhered to, thereby encouraging open and truthful participation.

Causal Direction of Association: For the purpose of this study, it was assumed that violence acts as an independent variable influencing ART adherence, rather than poor adherence necessarily leading to experiences of violence.

1.9.2 Hypothesis

The null hypothesis that was tested by this study was that there is no association between physical, emotional and sexual violence and ART adherence among adolescents living with HIV in Lilongwe, Malawi.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This section outlines relevant literature on violence, adherence to antiretroviral therapy and associations from other research studies.

2.2 The Theoretical Framework

This study was grounded on the Metatheory of Critical Realism (Figure 1), which was developed by Roy Bhaskar in 1975. Critical realism is a meta-theory for social sciences and it emphasizes the importance of identifying causal mechanisms and structures that shape social phenomena, rather than simply focusing on observable events. This theory aligned well with the goals of this study, which aimed to determine the effects of violence on adherence to antiretroviral therapy among adolescents living with HIV attending ART clinics in select facilities in Lilongwe, Malawi. Using this Metatheory of critical realism the study theory was as follows:

The experience or non-experience of violence among ALWHIV and using ART would place them in a position to remain adherent or non-adherent to their ART medication, and this would reflect in their self-reported adherence and their viral load results. The critical truth could be found through assessment of their adherence, checking medical records for any past non-adherence or missing appointment, semi-structured interviews about exposure to violence and how that affects adherence to ART and finally, the viral load results would be checked to see if these affected the outcome of their health.

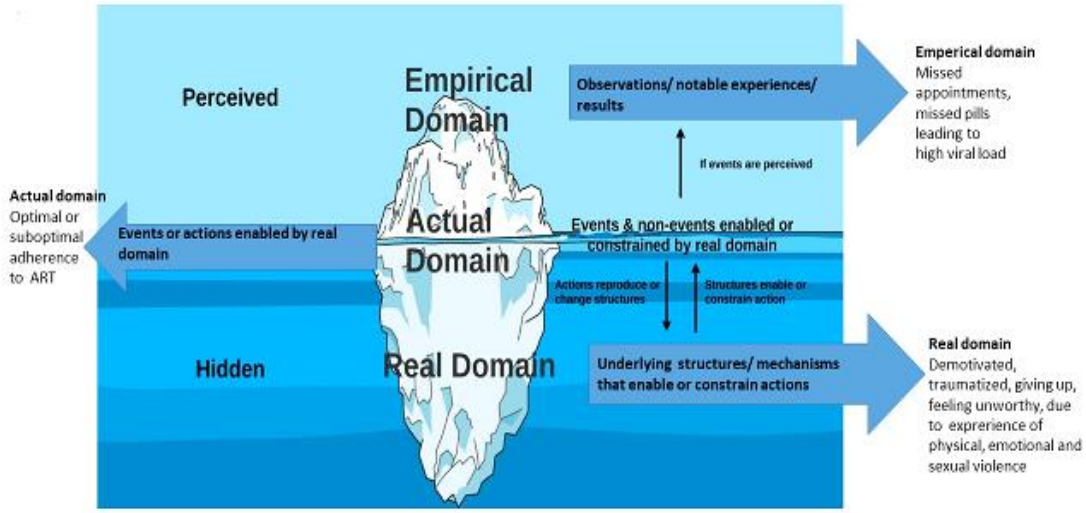

Figure 1:Metatheory of Critical Realism.

Demonstrating the association between violence and art adherence among ALWHIV (adapted from Anderson, 2020).

2.3 Review of Related and Empirical Literature

Sub-Saharan Africa (SSA) carries most of the global HIV/AIDS burden, with over 80% of the world's ALWHIV living in the region (UNICEF, 2023). Low adherence to ART has become of particular interest in settings of low resources due to the limited ART alternatives available and the threat of drug resistance that comes with suboptimal ART adherence (Adejumo et al., 2015, MoH, 2022). Studies recognise the adverse effects of specific types of violence on HIV outcomes. However, the situation in Malawi necessitates a more comprehensive understanding of how various forms of violence are associated with adherence to ART among adolescents. This section reviews contemporary literature (2018-2024) to understand the complex relationship between violence and adherence in adolescents living with HIV in Malawi.

2.3.1 ART Adherence Among Adolescents Living with HIV

Present estimations indicate that adherence rates among adolescents in Sub-Saharan Africa (SSA) are below the UNAIDS target of 95% required for successful viral suppression. These rates range from 65% to 75% (Hlophe et al., 2023, Wamalala et al., 2021, Malawi Spectrum Estimates, 2023, MoH, 2023). The situation is compounded by the fact that older teenagers (aged 15-19) demonstrate considerably reduced adherence compared to younger individuals who may still be under direct observed support from guardians (Afeyo et al., 2023).

As adolescents grow, they become more independent and experience psychological challenges that come with adolescence, which make them more vulnerable to social stigma, anxiety about disclosing their HIV status, leading to hiding ART pills and difficulties in managing complex prescription regimens and may lead to non-adherent to ART (Kip et al., 2022*)*. In addition, factors like poverty, sex, education as well as inadequate healthcare infrastructure in Sub-Saharan Africa pose further obstacles to maintaining continuous adherence to antiretroviral therapy (ART) (Karanja et al., 2019, Agyemang-Boakye et al. 2020).

2.3.2 Prevalence of Violence Among Adolescents

Globally, adolescent boys and girls experience violence. Although much emphasis has been made on violence and intimate partner violence (IPV), these mainly wear the face of a woman. Globally, it is estimated that above half of all children and adolescents in the world, thus, about one billion children aged 2–17 years, have experienced violence: either physical, sexual, or emotional or neglect in the past year (WHO, 2022).

In Malawi, based on UNAIDS (2023) estimates, 5.7% of adolescents between the ages of 10 and 19 are HIV-positive, and studies indicate a pervasive prevalence of physical, emotional and sexual violence (Nyirenda et al., 2022, Masiano et al., 2023). This combination of vulnerabilities produces an ideal situation for poor health and well-being.

The experience of many types of violence, whether occurring at the same time or one after another, negatively affects both physical and mental well-being. This has a great potential to hamper participation in HIV prevention and treatment access as well as ART adherence when initiated on ART (Eaton et al., 2020, Campbell et al., 2020). By the year 2024, the latest demographic health survey results available in Malawi are for the year 2016 and shows the prevalence of violence mainly in women, with 34% of women having ever experienced physical violence since age 15 and 21% ever experienced sexual violence at any point in their lives. The most common type of spousal violence was emotional violence at 30% (Malawi National Statistical Office, 2016).

The Malawi Demographic Health Survey (MDHS) did not specifically assess violence among adolescents. Government of Malawi has shown commitment to eliminate violence and has passed a series of legislative acts like the 2006 Prevention of Domestic Violence Act, the Deceased Estates Act of 2011. To protect children, there is also the Child Care, Protection and Justice Act (2011). These legislations are mainly to protect women and children and are not necessarily specific for adolescents. Adolescents in Malawi experience high levels of violence, and often, communities, including adolescents themselves, find violence as a normal occurrence.

A prospective cohort study conducted by Pilgrim et al. (2020), involving out-of-school Adolescent Girls and Young Women (AGYW) engaged in the PEPFAR Determined Resilient Empowered AIDS Free mentored and Safe (DREAMS) program in Malawi, revealed that AGYW with a profile of higher vulnerability, exhibited a significant likelihood of endorsing violence and norms that are inequitable to gender. These girls also had an increased odd of having experienced sexually transmitted infections (STI) symptoms, premature sexual initiation before the age of 15, adolescent pregnancy, participation in transactional sex, and enduring physical abuse from sexual or intimate partners as well as sexual violence from non-partners (Pilgrim et al., 2020). Another study in Kenya found high rates of violence among adolescents on ART, with 27% physical violence, 35% sexual violence and 40% emotional violence (Altamirano et al., 2023).

However, these studies were conducted in a different setting from Lilongwe. An older study conducted among ALWHIV in Malawi found that witnessing or experiencing violence in the home was associated with missing a dose of ART medication in the past week (Kim.et al., 2017). Kim's study examined levels of self-reported ART adherence, barriers to adherence, and factors associated with non-adherence, however, the study did not go into specific forms of violence and how these were associated with non-adherence amongst ALWHIV in Malawi. Another Malawi based survey conducted in 16 Primary schools across the country among 600 students revealed a high prevalence (70%) of School Related Gender-based Violence (SRGBV) among adolescent boys as well as girls. However, the study did not associate this violence with ART adherence; hence, the knowledge gap still exists.

Other studies have indicated that different types of violence have specific detrimental effects on the impact of HIV in adolescents. Instances of physical violence, commonly encountered in familiar or communal settings, have the potential to diminish trust and social assistance, hence prompting individuals to participate in risky sexual behaviour as coping mechanism and may affect adherence to ART in a non-supportive violent environment (Vander et al., 2019). Sexual violence among adolescents, although it often goes unreported as survivors fear being blamed and discriminated against, significantly raises the likelihood of contracting HIV due to physical harm and increased susceptibility to compulsion (Syukriani et al., 2022, Kayuni et al., 2020, Tembo et al., 2022). Sexual violence may also lead to emotional trauma, and just like emotional violence, these forms of violence, combined or separately, have the potential to undermine self-worth and may impede the disclosing of their HIV status, thus obstructing the ability to receive necessary medical attention and also risk reducing adherence to antiretroviral therapy if individuals start of ART (Chiti et al., 2023). Although much literature suggests that females are more vulnerable to violence than their male peers, the available literature on adolescent boys indicates they may also be struggling with violence, but they rarely speak out (Kaunda-Khangamwa, 2020).

2.3.3 Association Between Violence and Adherence to Antiretroviral Therapy among Adolescents Living with HIV and AIDS

2.3.3.1 Physical Violence.

Physical violence includes deliberate acts of causing bodily harm by slapping, beating, punching or other activities that lead to physical harm and pain (UNICEF, 2022). A cross-sectional investigation of obstacles and enablers of antiretroviral therapy adherence among AGYW in Western part of Kenya, found no association between

physical violence and poor adherence to ART (Altamirano et al, 2023). Nevertheless, this investigation was undertaken shortly after the COVID-19 pandemic, when mobility restrictions had not yet been entirely lifted in most contexts.

In contrast, a study by Zhou et al. (2021), conducted among adolescents aged 10-19 living with HIV across 52 public healthcare institutions in South Africa, revealed that ART non-adherence escalated when adolescents encountered violence in various environments. Additionally, exposure to emotional or physical or violence at home elevated the chance of ART non-adherence by 12% for both teenage females and males. Enhancing the literature in these domains is crucial as adolescents experience cognitive, psychological, emotional, and social transformations (Merrill, 2024).

2.3.3.2 Emotional Violence.

This includes failure or the neglect to furnish a developmentally suitable and nurturing environment, with instances including recurrent belittlement and intimidation, witnessing violence in the home, being tortured and being neglected, resulting in an adolescent feeling unworthy and demotivated (WHO, 2022). Studies conducted in other regions, like South Africa, have associated emotional violence with risky health behaviours, including non-adherence leading to poor health outcomes. Emotional violence may lead to mental stress and a loss of sense of agency, which may be associated with an increased risk of ART non-adherence (Cluver et al., 2018).

A qualitative study conducted among ALWHIV in Zomba, a district in the southern region of Malawi, found HIV associated stigma and discrimination related with psychological distress, occurrences of verbal/emotional abuse, diminished social support, feelings of rejection, isolation and engagement in risky health behaviours, including concealing medicine and non-adherence to antiretroviral therapy (Faidas et

al., 2024). The study did not look at the association which has been covered by this study.

Another qualitative study by Kaunda-Khangamwa et al. (2021) at a teen club in Blantyre, Malawi Blantyre, illustrated how ideas of masculinity may influence adolescent boys' sexual practice and involvement with health services. Additionally, the study demonstrated how being an orphan can push young boys into early sexual activity as they seek motherly love, care and companionship by paying for sex in an older female or late adolescent. In the absence of a caring caretaker or with disclosure of an ALWHIV status by aunties or uncles to neighbours, the adolescents may feel excluded, unaccepted, rejected by and alienated from others in the community. These feelings compound one's grief and loneliness and may lead to the use of alcohol and drug abuse, which may also be connected with poor ART adherence.

A study by Kim et al. (2018) in Malawi found alcohol use in the past month to be greatly associated with suboptimal adherence. Same study found, violence occurrences in the home was associated with suboptimal adherence levels. However, the study did not associate different forms of violence with adherence, hence the gap filed by this study.

2.3.3.3 Sexual Violence.

This encompasses any sexual act committed against an individual's willingness, including completed non-consensual intercourse (rape), attempted sexual acts without consent, sexual contact inciting unwanted touching, and sexual abuse without contact for example unwanted observation or exposure (UNICEF, 2023). Sexual violence is prevalent and may be a key social determinant of adherence to ART, especially among females of reproductive age.

A pooled analysis conducted in the year 2023 by Schrubbe et al. (2023) among women living with HIV from population-based household surveys from 9 countries in SSA found a 15.2% prevalence of sexual violence and a 19.8% prevalence of suboptimal ART adherence. The study identified a correlation between sexual violence and adherence to ART, revealing that women with a lifetime history of sexual violence had nearly double the odds (OR: 1.81, 95% CI: 1.33−2.48) of reporting suboptimal ART adherence compared to those without such a history (Schrubbe et al., 2023). However, this study was limited to women of reproductive age and the results may or may not be consistent in adolescents. Other findings from an adherence study among adolescents in South Africa found an inferior (38%) Marginal predicted probability of antiretroviral therapy adherence for adolescents exposed to sexual violence perpetrated by an intimate partner unlike those without this exposure at 72% ART adherence marginal predicted probability (Cluver et al., 2023).

Although this was an adolescent study, the setting in South Africa is different from Malawi and results may not be applicable in a Malawian setting, hence the need for a Malawi-specific study. Considering the prevalence of violence among adolescents, a Malawi study targeting AGYW that were enrolled in the DREAMS program recommended the need to invest in interventions that would take place in facilities and in the community mainly to prevent violence perpetrated by intimate partner and also to strengthen post-gender-based violence care (Pilgrim et al., 2020).

2.4 Identification of Knowledge Gap

The knowledge gap was determined by thoroughly examining existing literature and desk research. There were few studies on ART adherence and few on violence, however no study in Malawi had associated multiple forms of violence (physical, emotional and

sexual violence) to adherence to antiretroviral therapy among adolescents living with HIV. This study fills that knowledge gap.

2.5 Conceptual Framework

A conceptual framework was utilized in research to delineate potential alternatives for illustrating the favoured methodology (Kivunja, 2018). They serve as the framework for constructing the research questions and analysis. The researcher explored and established the definitions of the topics and elucidated the connections between them. The study categorized the variables affecting adherence to ART into two sets of variables: independent variables and dependent variables with an intervening variable (Figure 2).

Based on the conceptual framework, physical violence, which includes being beaten, punched, and slapped, may result in physical harm and bodily pain, which may interfere with keeping up on clinical appointments and even taking medication, leading to suboptimal adherence. Sexual and emotional violence may result in trauma, feelings of unworthiness, and demotivation, and these may also lead to non-adherence. Background characteristics like the age of the adolescent, level of education and sex may also interfere with being adherent or not to ART medication (UNAIDS, 2022, WHO, 2013, 2014, 2020, Cluver et al., 2018).

2.5.1 The Dependent Variables

In the study the dependent variable is adherence to antiretroviral therapy (Attainment of high recommended adherence levels i.e. taking 95% or above of the ART, no missing pills no missed appointment) or suboptimal adherence to antiretroviral therapy, thus

attainment of low adherence levels of below the recommended 95%, missing appointments and missing pills

2.5.2 Independent Variables

In the study the independent variables are different forms of violence and these are physical, emotional and sexual violence. Social demographic factors were also part of independent variables.

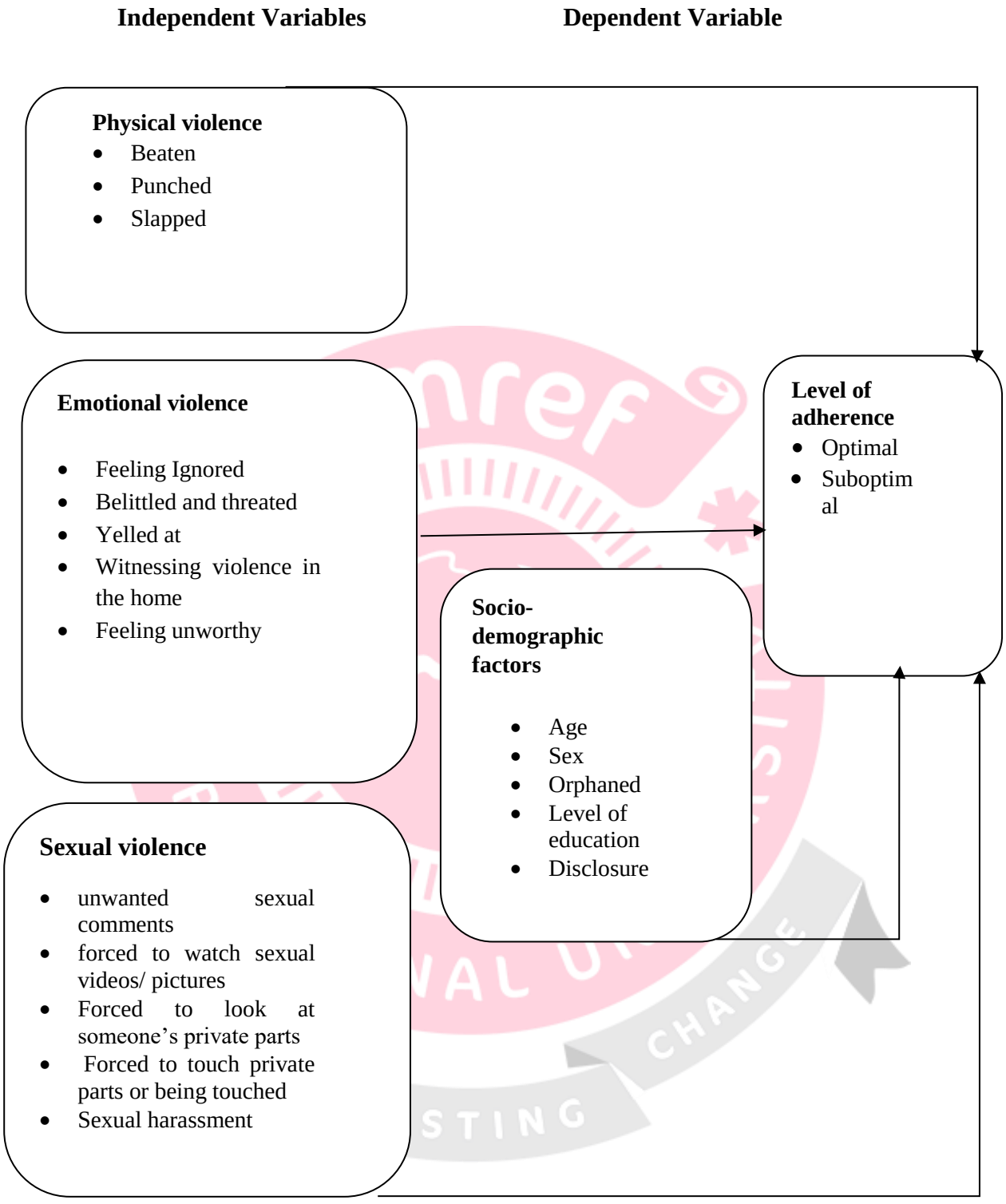

Figure 2: Conceptual framework

Adapted from multiple papers (UNAIDS,2022, WHO, 2013, 2014, 2020; Cluver et al., 2018; 2015; Kim et al., 2018; Idele et al., 2014; Mellins et al., 2013)

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter presents the detailed methodology used in this study, which includes the study design, the study area, the target population, sample and sampling procedures, data collection instruments, validity and reliability, data collection procedures, data analysis and presentation, ethical considerations, study constraints, and limitations.

3.2 Research Design

This study employed a cross-sectional design with both descriptive and analytical components. The descriptive aspect focused on summarizing the socio-demographic characteristics of adolescents and the prevalence of different forms of violence. The analytical component aimed to assess the association between different forms of violence and ART adherence using Chi-square tests and logistic regression models.

A quantitative approach was used to collect data through structured interviews with adolescents using an online kobo tool box. The quantitative approach was appropriate for hypothesis testing, enabling the examination of relationships between dependent and independent variables. In addition, a qualitative approach was employed to gain a deeper understanding of how violence affects adherence.

3.3 Study Area

The study was conducted in the Republic of Malawi, specifically in the Lilongwe District. Lilongwe is an urban district in central Malawi and serves as the capital city. The population of the city, according to the 2018 national census, is 989,318, with an

HIV prevalence rate of 11.8%, which is one of the highest in Malawi, compared to the national prevalence rate of 8.9% (Malawi Population Based Impact assessment (MPHIA), 2021). There are 104 ART clinics across Lilongwe, with 30 of these sites also running teen clubs that provide ART and special care to adolescents aged 10-19. The Teen Club provides support and serves as a venue for information exchange for ALWHIV. The objective of the Teen Club program is to create a secure, inviting, and supportive atmosphere for ALWHIV to cultivate robust relationships, enhance their self-esteem, and establish and repeat positive habits. Collaboratively, adolescents and adult mentors can facilitate a successful transition into adulthood. (BIPAI Teen Club Curriculum, 2012). The study was conducted at three health facilities that conducts teen clubs where adolescents living with HIV get their antiretroviral therapy and these are:

3.3.1 Baylor College of Medicine International Paediatric AIDS Initiative (BIPAI).

BIPAI-Malawi is a leading provider of paediatric HIV care in Malawi, offering care, treatment, and support to nearly 4,500 HIV-infected or exposed infants, children, and adolescents. The adolescent club was established in 2003 to address the increasing demand for services tailored to youth living with HIV in Lilongwe, Malawi. The initial clinic commenced with 10 adolescents and has expanded to provide care, therapy, and psychosocial support to an average of 1200 adolescents monthly in a youth-friendly clinic setting. BIPAI Teen Club, with support from the Malawi National AIDS Commission, UNICEF, and USAID Malawi, offers HIV services to adolescents at the BIPAI-Malawi clinic in Lilongwe and provides mentorship and technical assistance for establishing Teen Clubs at additional locations across Malawi (Baylor College of Medicine Children's Foundation-Malawi 2022).

3.3.2 Mtenthera Health Centre

This facility is located along M1 on Blantyre Road it is supported by USAID through Partners in Hope. The facility serves approximately 200 adolescents living with HIV. The services being offered include provision of antiretroviral therapy, viral load testing, counselling, and mentorship, among others (Partners in Hope, 2023).

3.3.3 Area 25 Health Centre

Area 25 health facility is located in the residential town west of Lilongwe District. The facility serves Lilongwe's most populated catchment area with around 250,000 inhabitants. The health Centre also runs a teen club on Saturdays that serves approximately 335 ALWHIV (Lilongwe District Health Office, 2024)

3.4 Target Population

The study targeted all ALWHIV aged 10-19 years accessing ART at the study sites in quantitative data collection. For qualitative data, we included 6 members of staff from the facilities (Mentors, a nurse and clinician) as key informants' in-depth interviews and 22 adolescents that had not been included in quantitative interview were included in 2 focus group discussions of 12 and 10.

3.4.1 Inclusion Criteria

1. All adolescents aged 10-19 living with HIV accessing ART at the study sites.
2. Adolescents who have been on ART for more than 6 months and accessing ART at any of the three study sites.
3. Adolescents that have been fully disclosed of their HIV status; to avoid accidental disclosure of HIV status by the researcher.

4. Study staff working at the teenclubs for over 6 months willing to participate as key informats
5. The willingness of the participants to participate and provide consent or assent

3.4.2 Exclusion Criteria

The exclusion criteria included the following:

1. Mentally unstable or critically ill adolescents
2. Adolescents who have been on ART for less than 6 months
3. Those unwilling or unable to provide consent or assent for study participation

3.5 Sample Size and Sampling Procedures

3.5.1 Sampling Procedure

The study sites were purposively selected as they are among the largest ten teen clubs in Malawi and have been operating for more than five years, with extensive experience in managing adolescents on ART. These sites were considered representative of the adolescent ART population in both Lilongwe and Malawi. Moreover, no previous study on this topic had been conducted in these specific areas, making them unique sites suitable for this research.

For the quantitative component, simple random sampling was used to select respondents from among all eligible adolescents attending their routine ART clinic at teen clubs on the dates of data collection (14-26 April 2025). All selected participants successfully completed the structured questionnaire.

Selection of FGD was 22 adolescents that had not been included in quantitative interview were included in 2 focus group discussions of 12 and 10 each in-depth interview informants were facility staff e selected based on their roles working with teens in ART clinics and their knowledge on Malawi policy on children and adolescent ART programming.

3.5.2 Sample Size Determination

The minimum desired sample size was computed using the population statistical formula for prevalent studies, as indicated below:

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

Where: n= minimum desired sample size

z= the standard normal deviation set at 1.96 corresponding to 95% Confidence Interval.

p= the proportion of targeted population estimated to have characteristics- since the prevalence of adherence from the only study that used MEMS (medication event monitoring system) in Malawi is 88.1% (Bell et al., 2007)

q = the proportion of the remaining population calculated by subtracting p from 1(1-p)

d = minimum error

The calculated required sample size was therefore calculated as shown below:

$$n = \frac{1.96^2 \times 0.881 \times 0.119}{0.05^2}$$

= 161.099

Minimum desired n= 161

Probability Proportional to Size (PPS) was used to allocate the number of respondents per each teen club based on each facility Cohort Size as shown in Table 1.

Table 1:Study Enrolment Sample Distribution using PPS sampling

Facility Name	Total cohort of adolescents on ART	% Total Adolescent cohort	Facility Sample Size by proportion	Actual enrolled in the study
Baylor health facility	1200	69%	111	93
Area 25 health centre	335	19%	31	87
Mtenthera health centre	200	12%	19	10
Total	**1735**	**100%**	**161**	**190**

3.6 Data Collection Instruments

3.6.1 Quantitative Data Collection

Quantitative data was collected through semi-structured questionnaires employing a mix of open and closed-ended questions to get respondents' demographic information, self-reports of adherence and experiences, if any, of emotional, physical, and sexual violence. Additionally, medical records were reviewed for viral load and missed clinic appointments over the preceding year.

3.6.2 Qualitative Data Collection

Focus group discussion guides and key informant guides were used to collect qualitative data that was recorded and thematically analysed. The FGD discussants were adolescents to whom the questionnaire had not been administered to. This offered a platform for collective exploration of experiences and opinions. The key informants were purposively selected based on their positions of authority at the Teen Clubs and Lilongwe District Health Office and their willingness to participate.

3.6.3 Methods Used to Measure Adherence

Given the absence of a gold standard measurement for ART adherence, a combination of methods is employed to enhance accuracy. Patients' self-reports of adherence provide insights into individual perceptions and behaviours. The self-reports method, as defined by Schoenbaum et al. (2019), involves a calculation of the proportion of missed pills based on patients' recall.

3.6.4 Self-Reports Method

The patient was asked to recall how many dosages of ART they had missed in the past one month and if they missed any clinic appointment in the past six months using questions adapted from past studies (Chesney et al., 2016). Recall of missed pills helped to calculate adherence rate as follows: The number of missed pills were subtracted from the number of pills that the client was supposed to have taken to find number of pills taken that month. Then an adherence formula was used to calculate adherence rate as follows: : $\left(\frac{number\ of\ \ pills\ taken}{number\ of\ pills\ expected\ to\ be\ taken\ by\ patient} * 100\%\right)$ (Schoenbaum et al., 2019, Sarkar et al., 2022, World Health Organization, 2020), The result provided the reported adherence rate.

Verification on the previous date of visit and the number of pills issued was done by checking the patients' master cards and health passports (secondary data). The self-recall method, according to Schoenbaum et al. (2019), is the most used, and it has the advantages of affordability and flexible design. The data can be readily gathered and may elucidate the factors contributing to patient non-adherence. The method's shortcoming is in its reliance on the assumption that patients can reliably remember their medication adherence and provide truthful responses. Ferradini et al. (2019)

however, indicated that adherence self-reports agree well with actual medication intake and viral load. The proportion of a respondent's self-report adherence was obtained using this formula: $\left(\frac{number\ of\ \ pills\ taken}{number\ of\ pills\ expected\ to\ be\ taken\ by\ patient} * 100\%\right)$

3.7 Validity and Reliability

To guarantee the validity and reliability of data, quality control measures were taken as follows: three research assistants were chosen based on their previous experience of working in an ART or adolescent setting and past involvement in research to ensure their competence, including the use of appropriate language to adolescents. Training was done to familiarise them with all study tools and methods prior to actual data collection.

In order to ensure quality, all study tools were translated into the local language (Chichewa) as required by the Malawi National Health Sciences Research Committee for all research studies conducted in Malawi. This enhanced effective communication with respondents and ensured the validity of the study tools. Pre-testing of tools was done before the commencement of data collection to verify the reliability of the tools. A review and some revisions of tools was done following the pre-test. Pre-test results were not included in the study analysis and report.

The researcher regularly did ongoing supervision of the data collection process throughout the data collection process to ensure completeness and accuracy. Further quality control checks were conducted during and after data entry to ensure that all data is correctly transformed into assigned codes.

3.7.1 Validity Test

Additionally, a validity test was conducted using Spearman's rank correlation between the questions to determine the data collection tool's accuracy in measuring the patterns of interest (Haele & Twycross, 2015). If Sig. <0.05, the question/instrument is valid, and if Sig. > 0.05, the question/instrument is not valid. However, questions that statistically failed the validity test were manually sorted and reviewed. The remaining questions that failed the test were eliminated or excluded from the analysis.

3.7.2 Reliability

Using Cronbach's Alpha statistic, the instrument's Reliability was determined whereby if Cronbach's Alpha > 0.6, the instrument is reliable; otherwise, it is not if it is < 0.6. Cronbach's Alpha was higher than 0.6, indicating that the tool was reliable.

3.8 Data Collection Procedures

Data collection was done from 14 to 26 April 2025. A total of 190 respondents were included in quantitative data. To eliminate errors and ensure completeness and quality of data at field level, the researcher used kobo Toolbox for all data collection. The kobo toolbox features and functionalities of skip logic, validation rules, real-time data review, and customization of views were used.

Quantitative data was extracted from Kobo, transferred to Excel, and subsequently imported into Statistical Package for the Social Sciences (SPSS) version 22 for cleaning and analysis. Additionally, medical records were reviewed for viral load and missed clinic appointments over the preceding year.

Six in-depth interviews were done with key informants and these were two ART nurses, one clinician, two teen club mentors, and a representative from the District health office. Two focus group discussions of 10 and 12 adolescents per FGD were done with adolescents from Area 25 and Baylor facility. There was no FGD at Mtenthera as adolescents were interviewed from homes due to no scheduled FGD at the time of the study.

3.9 Data Analysis and Presentation

3.9.1 Data Processing

To eliminate errors and ensure completeness and quality of data at field level, the researcher used kobo Toolbox for all data collection. The kobo toolbox features and functionalities of skip logic, validation rules, real-time data review, and customization of views were used. Quantitative data was extracted from Kobo, transferred to Excel, and subsequently imported into Statistical Package for the Social Sciences (SPSS) version 22 for cleaning and analysis.

3.9.2 Data Analysis

The quantitative data were analysed using statistical software IBM-SPSS version 22. Data on the demographic characteristics of the respondents were compiled using descriptive statistics. Tables and graphs were created using the 'Analyse' field in the SPSS window, and appropriate frequency distribution tables were made.

The research investigated the association between adherence and various forms of violence through sequential multivariate logistic regressions. Regression and marginal effects were employed to examine interactive and additive effects. Categorical data was evaluated through frequencies, proportions, graphs, and narratives, whereas descriptive

statistics employed measures of central tendency and dispersion for both continuous and discrete numerical data. To assess the statistical significance of the associations and relationships between the variables, 95% confidence intervals (CI), p-value $p \leq 0.05$ was used. Statistical significance was established as a two-sided p-value of less than 0.05 for all conducted analyses This was the standard threshold for determining statistical significance in the study. Background factors such as age, sex, education, and orphan status were examined as potential confounders.

Qualitative data collected from key informants and focus group discussants were thematically analysed using NVivo software. A narrative was then provided, appropriately triangulating the results from both the qualitative and quantitative data. The Cohen's ranking determined the strength of the correlation. In 1988, Cohen simplified the interpretation of correlation coefficient results and recommended Pearson *r* values of 0.10-0.29, 0.30-0.49, and 0.50-1.00 to demarcate robust, moderate, and weak correlations, respectively (Hanifah et al., 2018, Gignac & Szodorai, 2016).

3.9.3 Operational definition and Measurement of Study Variables

Table 2:Operational definition and Measurement of study variables

N	Variables	Operation definition	Scale of measurement
1	ART adherence Status	Optimal or suboptimal as defined by attainment of high recommended adherence levels; Taking 95% or above of the ART; (Optimal) or Low adherence levels; Taking less than the recommended 95% of ART (Suboptimal)	Categorical binary (Optimal/ Suboptimal
	Independent Variables: Socio-demographic factors		
2	Sex	Biological characteristics of being male or female as defined by birth	Categorical binary (Male/ Female)
3	Level of education	The highest educational level achieved by the respondent	Categorical Ordinal, e.g. None, primary, secondary, tertiary.
4	Orphaned	Having one or both parents deceased	Categorical binary (Yes/ No)
5	Age	Age of respondent in complete years	Numerical Continuous
6	Disclosure	Whether the adolescent has ever disclosed their HIV status to anyone other than their guardian/ parents and the reason they take ART	Categorical binary (Yes/ No)
	History of non-adherence		
7	Missed ART	Failure to take ART as prescribed for any reason	Categorical binary (Yes /No)

8	Missed appointment date	Failure of the respondent to report to the clinic on the appointment date	Categorical binary (Yes/ No)
	Knowledge of ART adherence	Knowing the importance of good adherence and the dangers of non-adherence	Categorical binary (Yes/ No)
	Emotional violence		
9	Neglect and shame	Feeling ignored, being yelled at or shouted at, or being made to feel ashamed or bad about yourself.	Categorical binary (Yes/ No)
1	Fear and unsafe	Being made to feel afraid, unsafe or in danger? (As with the	Categorical binary (Yes/ No)
1	Self-harm or suicidal thoughts	Having thoughts of harming oneself or killing oneself due to emotional torture	Categorical binary (Yes/ No)
	Sexual violence		
1	Rape	Being forced to have sex or perform any sexual act,	Categorical binary (Yes/ No)
1	Sexual harassment	Being touched sexually or being given sexual comments in any way that responded did not want	Categorical binary (Yes/No)
1	Age at sexual debut	Age when adolescent first had penetrative sexual intercourse with a partner of opposite sex in complete years	Numerical Continuous
	Physical Violence		
1	Physical bodily harm	Deliberate bodily harm resulting from interactions with caregivers, teachers, or peers, including actions like beating, slapping, punching, or any other form of intentional physical harm	Categorical binary (Yes/ No)

3.10 Ethical Considerations

The study proposal was submitted for review and got approval from AMIU Graduate School and the Malawi National Health Sciences Research Committee (NHSRC). NHSRC issued a certificate of approval (Appendix 18; Protocol number 25/03/4599). Administrative approval was also obtained from the Lilongwe District Health Office and the hospital authorities at the study site. Additionally, parental or guardian consent was obtained from all parents of care givers of children below the age of 18 as they are recognized as minors. Adolescents aged 18 and above provided their own consent. While all children below 18 provided an assent.

Confidentiality was maintained at all stages of the study, as it was a critical aspect of study ethics. Real time submission of each questionnaire on kobo toolbox prevented data collectors from having access to completed questionnaire after submission. Only the investigator had access to the soft copy of completed questionnaires on kobo toolkit. The kobo platform auto generated a unique ID number and respondents' names or codes to trace them were not used in the analysis or report writing. All collected information was kept confidential in a password-protected electronic file, with access limited to the study investigator only.

Participation in the study was voluntary, and all respondents were informed about the study's goal and nature before their involvement. Respondents' right to decline participation was respected, and they were not coerced or persuaded to take part in the study.

3.11 Study Constraints and Limitations

This study was conducted at a time when the US government had issued a stop work order in order to re-evaluate foreign aid and this had affected financial support to teen clubs. Initially adolescents coming to teen clubs used to get lunch (meals and refreshments) and the mentors used to get a lunch allowance or transport reimbursement for working on a weekend (teen clubs usually run on Saturdays) with a freeze in foreign aid, there was reduction in health workforce and the few available government staff had moved adolescents appointments, most of them given 6 months appointment in line with the Feb 27 2025 government circular on uninterrupted HIV and some moved to weekdays appointments. This provided a challenge to get adolescents in teen clubs and the data collection was long as the researcher had to utilize both weekdays and weekends to search for adolescents.

Additionally, 2 FGD instead of 3 were conducted as Mtenthera had very few adolescents and they were only included in the quantitative interview. The next teen club for Mtenthera was scheduled in July and the data collection was in April, as a result, the researcher sought the support of the facility staff to trace adolescents in their homes to conduct the interview. Unlike Baylor and A25 where all interviews were done at the facility, for Mtenthera all interviews were done in adolescent homes. Since ALWHIV for Mtenthera were individually found in homes after tracing, the study was not able bring them together for a FGD.

CHAPTER 4: RESULTS

4.1 Introduction

This chapter presents the results of both quantitative and qualitative findings from the study on effects of different forms of violence on ART adherence t among adolescents living with HIV in Lilongwe, Malawi. The findings are in line with study objectives and they cover socio demographic characteristics, ART adherence rate, optimal and suboptimal rates, prevalence of violence and finally association of violence and ART adherence. These results have been presented using graphs, bar charts, tables and narratives description.

4.2 Univariate Analysis

4.2.1 Sampling Framework and Study Locations

The study was conducted across three health facilities in Lilongwe: Baylor Centre of Excellence, Area 25 Health Centre, and Mtenthera Health Centre. A total of 190 adolescents aged 10–19 years were enrolled, exceeding the initially targeted minimum sample size of 161. During data collection, sample sizes per site were adjusted due to operational challenges particularly at Baylor and Mtenthera where activities were affected by a stop-work directive on foreign assistance issued by all U.S. government departments and agencies.

4.3 Socio-demographic Characteristics of Respondents

4.3.1 Age of Respondents

The enrolled participants were adolescents aged 10-19 years with a mean age of 17 years ±2.316 [95% CI] age was further categorized into early adolescents (10-14 years) and older adolescents 15-19 years. More than three quarters of respondents n=158 were

within the older adolescents age group and a small proportion, 16.8% belonged to the younger adolescent age group.

4.3.2 Sex of Respondents

Above half of the respondents, 56.3% (n = 107) were females and 43.7% (n = 83) were male.

4.3.3 Orphan Hood

Concerning the survival status of parents, 46.3% (n = 88) reported having both parents alive, above half of the respondents (n=102; 53.7%) were orphans, that is, they reported that they lost one or both parents. Orphan hood was determined as having lost one or both parents and 28.4% (n = 54) had only their mother alive, 10.5% (n = 20) had only their father alive, and 14.7% (n = 28) were double orphans (both parents deceased). The rest of social demographic characteristics are all included in Table 3.

Table 3:Social demographic results of respondents

Characteristic	Frequency(n)	Percentage
10-14 years (young adolescents)	32	16.8
15-19 years (older adolescents)	158	83.2
Mean age = 17 years old ± 2.316[95%CI]		
Sex		
Male	83	43.7
Female	107	56.3
Education level		
Primary	81	42.6
Secondary	96	50.5
Tertiary	12	6.3
None	1	0.5
Religion		
Catholic	33	17.4
Pentecost	62	32.6
Presbyterian	45	23.7
Muslim	15	7.9
Others	35	18.4
Orphan hood		
Orphan	102	70.5
Non-orphan	88	24.7
Disclosure of HIV status		
Ever disclosed to anyone (other than parent/ guardian)	86	45.3
Never disclosed	104	54.7

4.4 The Rate of ART Adherence Among Adolescents Living With HIV

The result of self-report adherence rate for each respondent was obtained using one-month self-recall. The overall adherence rate was computed as the average of respondent's adherence rate. Using this formula: $\left(\frac{number\ of\ \ pills\ taken\ in\ a\ month}{number\ of\ pills\ expected\ to\ be\ taken\ in\ a\ month} * 100\%\right)$

A respondent was classified as having optimal adherence when he took 95% or more of their antiretroviral medication as measured using the adherence measurement method. After computing individual adherence rate, the average for the study was 93.7%. The study conformed to using a cut-off point from the WHO (2022) recommended 95% to see how many attained optimal or suboptimal adherence rate. Among the 190 respondents, only slightly above half the respondent (54%, n=102) attained optimal adherence while 46% had suboptimal ART adherence.

The result showed that the majority of respondents (71%, n=135) kept their clinic appointment dates while about a third of respondents had missed clinic visits in the past 6 months. The results further showed that a majority of adolescents who reported missing a clinic visit in the previous six months, 58.2% (n=32) exhibited suboptimal adherence to ART, while 41.8% (n=23) achieved optimal adherence. Among those who did not miss clinic visits, 58.5% (n=62) achieved optimal adherence, compared to 41.5% (n=44) who had suboptimal adherence.

Additionally, of all the study respondents, only 110 (57%) had their viral load results in the past one year. Almost all respondents from Area 25 health centre did not have viral load results. Qualitative results showed that the clinic had suspended viral load tests due to absence of an implementing partners following the US executive orders on

stop work. A large proportion 79.2% of adolescents with suboptimal adherence had high viral load (≥1,000 copies), while only 20.8% (n=5) demonstrated optimal adherence. Conversely, six in every ten (n=54) respondents who had achieved optimal adherence, had low or undetectable viral load (<1,000 copies).

Table 4:ART Adherence and Related Indicators

Indicator	Category	Frequency (n)	Percentage (%)
General ART Adherence	Optimal	102	54.0
	Suboptimal	88	46.0
Clinic Visit	Missed	55	29.0
	Not Missed	135	71.0
Adherence for ALWHIV who missed visits	Optimal	23	41.8
	Suboptimal	32	58.2
Adherence for ALWHIV_ no missed visit	Optimal	62	58.5
	Suboptimal	44	41.5
Viral Load Results Available	Yes	110	57.0
	No	80	43.0
Adherence among High Viral Load (≥1,000 copies)	Optimal	5	20.8
	Suboptimal	19	79.2
Adherence among Low Viral Load (<1,000 copies)	Optimal	54	60.0
	Suboptimal	36	40.0

4.5 Prevalence of Violence Among Adolescents Living With HIV

Adolescents were asked if they had ever experienced any form of violence from emotional, physical and sexual. A response of yes to any experience of violence was categorized as ever experienced violence and a response of no to all was translated as no violence exposure. The study found that 86.3% of adolescents (n=164) living with HIV had experienced some form of violence in their life, while 13.7% reported no experience of violence. Different forms of violence were also analysed separately, emotional violence was more prevalent at 76.8%, sexual violence was at 53% while physical violence was at 30.5%.

Table 5: Prevalence of Violence Among Adolescents Living With HIV

Violence exposures		Frequency (n)	Percentage (%)
Ever experienced Violence	Yes	164	86.3%
	No	26	13.7%
Types of violence	Emotional	146	76.8%
	Sexual	101	53.0%
	Physical	58	30.5%
Exposure to multiple forms of violence	Single/No	88	46.3
	Multiple	102	53.7

A large proportion of respondents (64%) with physical violence had suboptimal adherence seconded by sexual and emotional violence.

During FGD, discussants shared that most adolescents especially those staying with step parents or relatives do experience different forms of violence. They mainly

indicated that when one is an orphan, violence becomes an everyday experience. "*Sometimes you just grow thick skin and become resilient, it also makes you to find ways of defending yourself so one can resort to being violent as well*, said a young adolescent boy from area 25 with a smirking smile on his face. Asked if they report violence most adolescents said it was hard to report violence especially if it is perpetrated by guardians or step parents when an orphan doesn't have a safe haven.

The unwillingness to report, or lack of reporting violence was not due to lack of knowledge of where to report, or absence of reporting structures, but rather the fear of susceptibility to more violence or uncertainty of what happens after reporting. 15-year-old boy from Area 25 had this to say: *"Even if you know where to report to, you can't report violence perpetrated by your guardian if you don't have anywhere else to go, because you will come back to their house and face them, and they will be more violent to you. It feels safe just to pray and hope you will grow up and move away from violence when you become independent one day."*

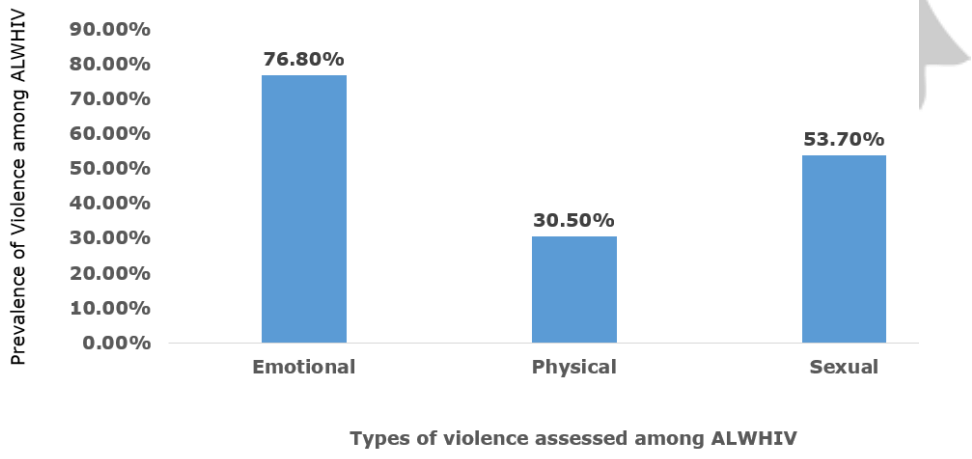

Figure 3:Prevalence of different forms of violence among ALWHIV in select in Lilongwe Malawi

FGD discussants from Baylor also confirmed occurrences of violence among adolescents. At Baylor, the respondents indicated that the clinic used to asses for violence and also teach them on what violence was, but they said this year, 2025, nobody has ever mentioned anything on violence. The study also found that violence had other devastating effects on adolescents even beyond adherence to ART. It can lead to teenage pregnancy; school dropout and even poverty as found by the study. *"I got pregnant because I was finding solace in a neighbour's nephew and I ended up provoking even more violence because this guy denied the pregnancy and I dropped out of school. Now I am struggling to make ends meet, I was pushed out of my father's house by my step mother when she discovered I was 4 months pregnant, I went to the village but after giving birth I came back to town to look for means of survival,"* said a 19-year-old adolescent from Baylor with a baby on her lap looking a bit disturbed.

4.5.1 Findings on Emotional Violence and ART Adherence

The prevalence of emotional violence among adolescents in this study was assessed by asking respondents about various forms of emotional abuse they had experienced in the past 12 months. The responses were categorized based on three main types of emotional violence: feeling ignored or belittled, feeling unsafe or in danger, having thoughts of self-harm or suicide due to violence, and eventually the study analysed if there were any reports of disruptions in ART adherence due to emotional disturbance.

4.5.1.1 Feeling Ignored, Belittled, or Yelled at.

A significant proportion of adolescents, 37.8% (n=133), reported experiencing emotional violence in the form of being ignored, belittled, or yelled at in the past 12 months. This form of emotional abuse was the most reported among the participants.

Of the 133 respondents who reported experiencing emotional violence in the form of being ignored, belittled, or yelled at in the past year, over half (n=68) exhibited suboptimal adherence to ART, while 65 (48.9%) adhered optimal.

4.5.1.2 Feeling Unsafe or Afraid.

Over quarter of the respondents, 27.0% (n=95) reported feeling afraid or unsafe during the past year. These respondents described experiences of emotional violence that created a sense of fear or insecurity. Among the 95 respondents who reported feeling unsafe or in danger during the past year, 49 (51.6%) had suboptimal adherence to ART, compared to 46 (48.4%) who adhered optimally.

4.5.1.3 Thoughts of Self-Harm or Suicide.

A small proportion of respondents (14.2%, n=50) reported having thoughts of suicide or self-harm in the past year because of emotional violence. This indicates a more severe psychological impact related to emotional violence among some of the adolescents. Of the 50 respondents who reported having suicidal thoughts in the past year, 29 (58%) showed suboptimal adherence, while 21 (42%) had optimal adherence to ART.

4.5.1.4 Failure to Take ART Due to Emotional Disturbance.

Among the 74 respondents who indicated that emotional violence disrupted their ability to take ART, 46 (62.2%) experienced suboptimal adherence, while only 28 (37.8%) adhered optimally.

4.5.1.4 ART Adherence Disruption Due to Emotional Violence.

Close to a quarter (21.0%, n=74) of respondents indicated that emotional violence interfered with their ability to take their ART medication as prescribed. This shows a direct relationship between emotional violence and the failure to adhere to ART. "*When an adolescent experience emotional trauma it may affect their mental health and they may not value their lives let alone think of taking ART. We try to make adolescents cope with issues of life so we have different games, we make them play and chat while they await to be seen by a clinician,"* indicated an ART mentor from Baylor.

4.5.2 Findings on Physical Violence

The respondents reported various forms of physical violence they had experienced in the past year. The findings revealed that 61.3% of adolescents reported being physically harmed (punched, slapped, or kicked) in the past year. While a small proportion of adolescents (16.1%) reported being threatened with or harmed by an object or weapon within the past year. And lastly, 22.6% of respondents indicated that they had failed to take their ART medication due to disturbances caused by physical violence.

4.5.3 Findings on Sexual Violence

Sexual violence was 53.7% was confirmed by qualitative findings, with concerns that survivors of sexual violence may present with sexually transmitted diseases, but health care workers just treat them without probing for sexual violence and the adolescents are sometimes afraid to report sexual violence. During in-depth interview a nurse indicated that they have since stopped assessing for violence after the release of the US

government Executive orders; " *the staff from the organization that supports us came to remove all registers of violence since they were written GBV and they said it does not align with US new policies. So yes, we have since stopped assessing or mentioning anything to do with violence as it is not allowed and may lead to withdraw of funding in Malawi."* Said a nurse at A25 health facility.

Sexual violence was assessed through several questions and if a respondent answered yes to any of the questions they were categorized as having experienced sexual violence. The most common forms of sexual violence included receiving unwanted sexual comments (n = 78), being made to watch sexual videos or pictures (n = 41), and being made to look at someone's private parts (n = 31) being forced to touch private parts or being touched without consent (n = 28), and being forced to have sexual intercourse or perform sexual acts (n = 50), Additionally, 13 adolescents reported that sexual violence had interfered with their ability to adhere to ART.

Being forced to have sexual intercourse was confirmed in a FGD as something ALWHIV may face. One discussant had this touching story to share *"I know a girl, she is actually a friend and used to be consistently raped by her step brother, the brother said if the girl refuses to have sex with him, he would expose her that she is HIV positive and take ARV medication, to avoid the shame of being labelled as an HIV person, the girl allowed to give it to him once, but it turned to be a routine and was turned into a sex slave. Later she had an STI told me about it. I encouraged her to tell the nurse here. Unfortunately, nothing else was done other than just treating her for the STI and she still stays in that hostile environment. I am not sure the guy will stop, maybe she should report to Yoneco."* Yoneco is one of the USG funded organization in Malawi that among other things protects minors from violence and abuse including sexual violence.

4.6 Bivariate Analysis

4.6.1 Bivariate Analysis of ART Adherence in Relation to Socio-Demographic Characteristics, Clinic Attendance, and Viral Load Status Among Adolescents Living with HIV

Bivariate analysis was conducted to explore the relationships between social demographics variables and ART adherence using chi-square tests. In terms of age category, proportion of optimal adherence was higher in younger adolescents (56.2%) than in older adolescents, 53.2%. However, the association between age group and adherence was not statistically significant (P=0.750).

The comparison of proportion of females with optimal ART adherence, the results revealed that 56% attained optimal adherence. The results showed that proportion of males who were optimal versus suboptimal to ART adherence was slightly equal. There was no association between being male or female and attainment of optimal adherence (p=0.648).

The study results showed that above half (53.9%) of respondents with secondary education had optimal adherence while only slightly above a third (38.2%) with primary education had optimal adherence. The rest (tertiary and no education) had suboptimal rates but their numbers were also small. In terms of orphan hood, surprisingly, a higher proportion of orphans, 56.8% (n=58) had optimal ART adherence compared to non-orphans 43.1%. Disclosure is an important aspect in ART adherence.

For those who had ever disclosed to anyone (other than parent/ guardian above half of those had optional adherence. When tested for statistical significance, disclosure was not associated with attainment of optimal adherence. The results indicated a strong association between ART adherence and both clinics visit attendance (p = 0.01) and

viral load status (p = 0.001). Detailed association based on chi square tests is shown in Table 6.

Table 6: Cross tabulation of Socio-Demographic Characteristics, Missed Clinic Visits, and Viral Load Status by ART Adherence

Characteristic	All (n=190 (100%)	Suboptimal Adherence (<95%)	Optimal adherence (≥95%)	P-value
Age group of respondents				
10-14 years (young adolescents)	32 (16.8)	14 (43.8)	18 (56.2)	0.750
15-19 years (older adolescents)	158 (83.2)	74 (46.8)	84 (53.2)	
Mean age = 17 years old ± 2.316[95%CI]				
Sex				
Male	83 (43.7)	40 (48.2)	43 (51.8)	0.648
Female	107 (56.3)	48 (44.9)	59 (55.1)	
Education level				
Primary	81 (42.6)	42 (51.9)	39 (48.1)	0.324
Secondary	96 (50.5)	41 (42.7)	55 (57.3)	
Tertiary	12 (6.3)	4 (33.3)	8 (66.7)	
None	1 (0.5)	1(100)	0 (0)	

Religion				
Catholic	33 (17.4)	14 (15.9)	19 (18.6)	0.116
Pentecost	62 (32.6)	25 (28.4)	37 (36.3)	
Presbyterian	45 (23.7)	18 (20.5)	27 (26.5)	
Muslim	15 (7.9)	8 (9.1)	7 (6.9)	
Others	35 (18.4)	23 (26.1)	12 (11.8)	
Orphan hood				
Orphan	102 (70.5)	44 (43.1)	58 (56.8)	0.344
Non orphan	88 (24.7)	44 (50)	44 (50)	
Disclosure of HIV status				
Ever disclosed to anyone (other than parent/ guardian)	86 (45.3)	38 (44.2)	48 (55.8)	0.592
Never disclosed	104 (54.7)	50 (48.1)	54 (51.9)	
Missed visit	69(36.3)	40(60)	29(40)	**0.011**
Low viral load	88	32(36.4)	54(62.5)	**0.001**

4.6.2 Association between emotional violence and ART adherence

The results of the Chi-Square test showed a statistically significant relationship between emotional violence and ART adherence status (p= 6.477, df = 1, p = 0.011).

4.6.3 Association Between Physical Violence and ART Adherence

To further explore the relationship between physical violence and ART adherence, a chi-square test of independence was conducted. The results revealed a statistically significant association between the experience of physical violence and ART adherence status (P-value=0.001). The Quantitative results were validated by qualitative findings *"Oftentimes my uncle beats me, accusing me of stealing money which I do not know*

about, the wife knows it is their son who steals as she has caught him twice but when the husband accuses me, she just keeps quiet, pretending not to know. Sometimes I am made to sleep outside and can't take medication said a 14-year-old boy during one FGD.

With physical violence one tends to run away from the beatings and how can you tell a perpetrator "*Taimani nditenge kaye botolo la mankhwala?" (wait I would like to get my bottle of ARVs) before you run away?* Said a focus group discussant amidst laughter from the rest of discussants who all agreed with the sentiments that physical violence happens so fast, takes one unawares and as one runs from the beatings or is chased away, they do not remember to take medication since all that matters is their physical safety. From the bivariate analysis conducted to assess the association between physical violence and adherence to antiretroviral therapy. The results suggest that adolescents who experience physical violence are more likely to report suboptimal adherence to ART. The chi-square tests show the significance of this association and imply that the experience of physical violence may act as a barrier to proper medication adherence.

4.6.4 Association Between Sexual Violence and ART Adherence

Sexual violence with associated with suboptimal adherence to antiretroviral therapy. when asked if the facility assesses for violence among adolescents, a nurse had this to say: "*We used to have a violence assessment register but it was tagged Gender based violence and PIH staff came to take away all registers of GBV since we are told the US government is no longer funding any program on gender or gender based violence so we no longer assess for violence or talk about it now."*

The association between sexual violence and ART adherence was statistically significant. Results of the Pearson Chi-square test indicated a significant relationship between exposure to sexual violence and ART adherence status (p = 0.011). Thus, sexual violence experiences were significantly associated with suboptimal ART adherence among adolescents living with HIV in this study.

4.6.5 Association between Multiple Violence and ART Adherence

The association between exposure to multiple forms of violence and ART adherence was statistically significant. Results of the Pearson Chi-square test indicated a statistically significant relationship between number of violence exposures and ART adherence status (*p* = 0.011). Adolescents who experienced multiple forms of violence were significantly more likely to report suboptimal ART adherence compared to those with single or no exposure to violence.

Table 7:Cross tabulation of effect of different forms of violence on ART adherence

Independent variable		**ART adherence**		**Statistical test**
		Suboptimal	**optimal**	
Emotional violence	Yes (n=146)	75 (51%)	71(49%)	χ^2=6.477;1df P<0.05 **[0.01]** There is association
	No (n=44)	13 (29.5%)	31 (70.5%)	
Physical Violence	Yes (n=58)	37 (63.8%)	21 (36.2%)	χ^2=10.256 ;1df P<0.05 **[0.001]** There is an association
	No (n=132)	51 (38.6%)	81 (61.4%)	
Sexual violence	Yes (n=102)	56 (54.9%)	46 (45.1%)	χ^2=6.530.;1df P<0.05 **[0.011]** There is an association
	No (n=88)	32 (36.4%	56 (63.6%)	

	Single/No violence(n=88)	32(36.4%)	56(63.6%)	
Exposed to multiple violence	Multiple violence(n=102)	56(55%)	46(45%)	χ^2=6.530.;1df P<0.05 **[0.011]** There is an association

4.7 Multivariate Analysis

4.7.1 Multivariate Logistic Regression Analysis

A multivariate logistic regression was conducted to examine the association between various forms of violence and ART adherence among adolescents living with HIV. The model controlled for education level, sex, and orphan hood as socio-demographic confounders, as well as exposure to three types of violence (sexual, physical, and emotional). To avoid potential multicollinearity, each form of violence was entered into the model separately, rather than simultaneously, as adolescents who experience one form of violence are often exposed to others, leading to high correlation between variables. Therefore, exposure to multiples violence was not included in the model. Table 8 shows the results of the multivariate logistic regression.

Emotional violence was statistically significant associated with lower odds of adherence (p = 0.040, OR = 0.421, 95% CI: 0.185–0.961). This means adolescents who experienced emotional violence were about 58% less likely to adhere to ART, compared to those who had not experienced emotional violence. Physical violence was also statistically significant associated with lower odds of adherence (p = 0.021, OR = 0.432, 95% CI: 0.212–0.879), indicating that adolescents who were exposed to physical violence were 57% less likely to adhere to treatment. Sexual violence was not statistically significant associated with adherence (p = 0.128, OR = 0.580, 95% CI: 0.287–1.170)

Table 8:Summary of logistic regression output

Variable	SE	p-value	Odds Ratio (Exp(B))	95% CI for Exp(B)
Emotion Violence	0.421	0.040	0.421	0.185 – 0.961
Sexual Violence	0.358	0.128	0.580	0.287 – 1.170
Physical Violence	0.363	0.021	0.432	0.212 – 0.879
Education	0.287	0.557	1.183	0.674 – 2.077
Orphanhood	0.144	0.086	1.281	0.966 – 1.698
Respondent Sex	0.337	0.433	1.302	0.673 – 2.520
Missed clinic	0.436	0.214	0.852	0.248 – 1.367
Respondent Age	0.084	0.657	1.038	0.880 – 1.224

Demographic characteristics we all not statistically significant associated with adherence. Education did not independently influence adherence in this model (p = 0.557, OR = 1.183, 95% CI: 0.674–2.077). Orphan-hood status approached significance (p = 0.086, OR = 1.281, 95% CI: 0.966–1.698), implying that having parents alive may be modestly protective, though the association was not statistically significant. Respondent sex (p = 0.433, OR = 1.302) and age (p = 0.657, OR = 1.038) was not significant predictors of ART adherence. Missed clinic visits were not statistically significant (p = 0.214, OR = 0.852, 95% CI: 0.248–1.367).

4.7.1 Model Fit and Diagnostic Checking

To evaluate the predictive accuracy and goodness-of-fit of the logistic regression model in examining the association between violence and ART adherence, diagnostic checks were conducted. The Receiver Operating Characteristic (ROC) as shown in Figure 4 curve yielded an Area Under the Curve (AUC) of 0.81, indicating good discrimination ability of the model. An AUC of 0.81 suggests that the model is capable of distinguishing between adolescents with optimal and suboptimal ART adherence with

high accuracy. According to Hosmer et al. (2013), an AUC above 0.8 is considered strong and acceptable in health research context.

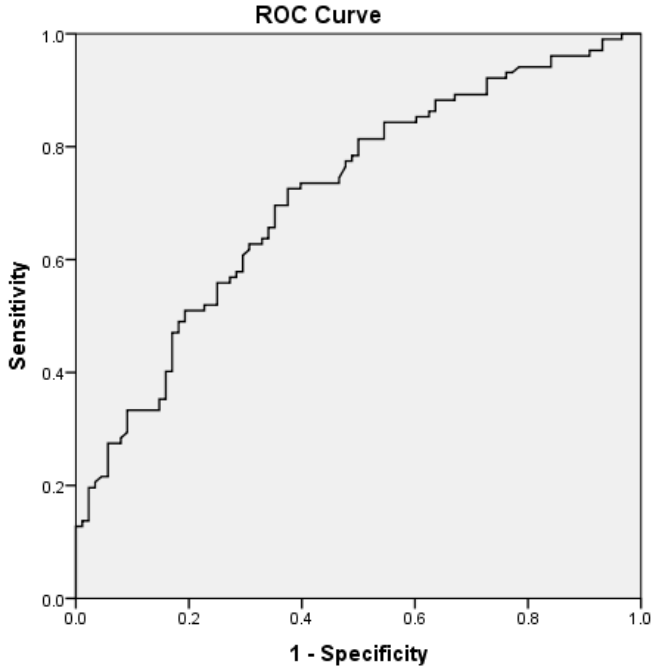

Figure 4:Receiver Operating Characteristic (ROC) showing model discrimination for predicting ART Adherence among Adolescents Living with HIV in Lilongwe, Malawi (AUC = 0.81)

Additionally, the Hosmer and Lemeshow goodness-of-fit test was performed to assess how well the model's predicted probabilities fit the actual outcomes. The test produced a Chi-square value of 1.295 with a p-value of 0.996, which is far above the 0.05 threshold for significance.

This high p-value indicates that there is no significant difference between the observed and predicted values, confirming that the model fits the data well. In other words, the logistic regression model adequately captured the underlying structure of the data and is a reliable tool for estimating the relationship between violence and ART adherence

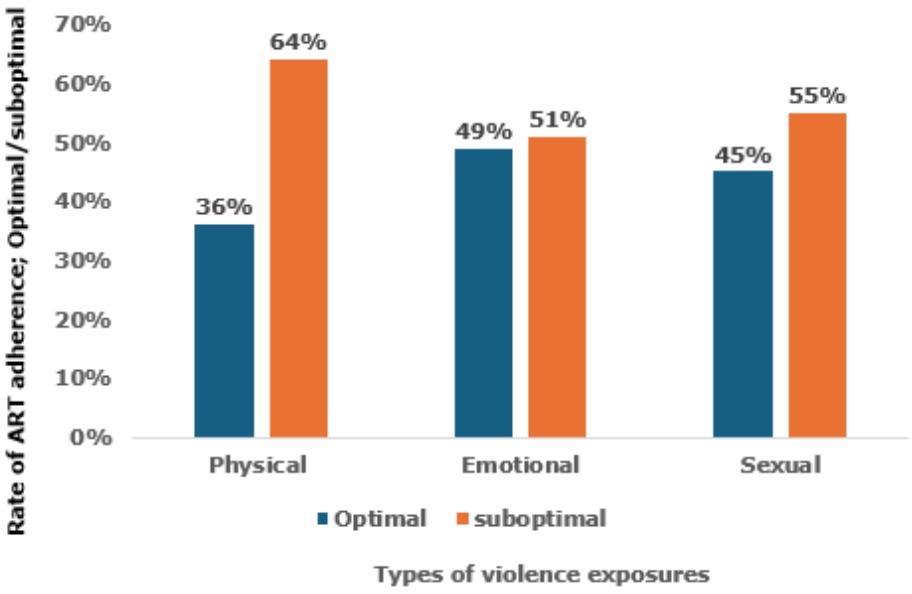

Figure 5:Proportion of violence against ART adherence

A large proportion of respondents (64%) with physical violence had suboptimal adherence seconded by sexual and emotional violence optimal ART adherence.

CHAPTER 5: DISCUSSIONS

5.1 Introduction

This chapter presents a comprehensive interpretation of the study findings in relation to the research objectives, relevant literature, and Malawi's legal and policy frameworks.

5.2 Rate of ART adherence among adolescents living with HIV

Adherence to ART and achieving viral suppression are vital for the health of adolescents living with HIV (ALHIV) and for preventing new HIV infections (Inman et al., 2024). In this study, although the overall self-reported adherence rate was relatively high at 93.7%, only 54% of adolescents attained optimal adherence, which is below the WHO (2020) recommended adherence threshold of ≥95%. This finding underscores the ongoing challenges in adolescent HIV care in Lilongwe, Malawi.

Comparatively, similar studies in other African settings have reported suboptimal adherence rates among adolescents: 81% in Soweto, South Africa (Inman et al., 2025), and 71% in Ethiopia (Zurbachew et al., 2023). The consequences of suboptimal adherence include poor health outcomes, failure to achieve viral suppression, development of drug resistance, and risk of onward HIV transmission (Alibi et al., 2023). In this study, only 78% of adolescents achieved viral suppression falling short of the UNAIDS global HIV 95-95-95 targets, particularly the third "95" which states that 95% of people on ART should be virally suppressed.

A systematic review by Hlophe et al. (2023), highlighted adherence rates as low as 65% and viral suppression rates of only 55% among adolescents in sub-Saharan Africa, with

Adams et al. (2022), reporting even lower viral suppression (40%) among adolescents in Kenya. Notably, older adolescents (15–19 years) in this study had a lower optimal adherence rate (53.2%), which is consistent with findings by Kip et al. (2022). As adolescents mature, increased independence, stigma, and psychological challenges contribute to adherence difficulties (Foster et al., 2020). However, this contrasts with findings by McBride et al. (2019), who observed higher adherence in older adolescents in Malawi, suggesting possible contextual and methodological differences.

This study was grounded on the metatheory of Critical Realism, which posits that underlying structures and causal mechanisms such as different forms of violence shape observable phenomena (Anderson, 2020). Here, low levels of optimal adherence (54%) was the actual domain manifesting in the lives of adolescents with missing pills observed alongside low viral suppression (78%) and was enabled by underlying structures in the real domain the high prevalence of violence; Physical violence 30.5%, sexual 53% and emotional (76.8%), with qualitative data indicating widespread underreporting due to fear, stigma, or lack of support.

The logistic regression analysis demonstrated statistically significant associations between different forms of violence (physical and emotional) and ART adherence, substantiating the theoretical lens of Critical Realism. The "actual domain" of adherence (optimal vs. suboptimal) is influenced by "real" structures like violence, while the "empirical domain" comprises observable events like missed pills and unsuppressed viral loads. While adults in Malawi maintain high adherence rates (~95%), adolescents continue to struggle, achieving only 74% adherence, according to Malawi Spectrum estimates and MoH (2023). This further highlights the need for adolescent-specific interventions.

5.3 Prevalence of Violence Among Adolescents Living with HIV in Select Facilities in Lilongwe, Malawi

The study revealed a high prevalence of violence among ALHIV in Lilongwe. These findings align with the 2020 Malawi Violence Against Children and Youth Survey (VACS), which also reported high rates of emotional and physical abuse. Similar patterns were noted in Kenya and South Africa, where emotional abuse was strongly associated with poor mental health and ART non-adherence (Cluver et al., 2015).

5.4 Association Between Violence and ART Adherence among Adolescents Living with HIV Attending Select Health Facilities in Lilongwe, Malawi.

Among adolescents enrolled in this cross-sectional study, from all three facilities, only 54.8% reported optimal ART adherence. This significant drop from the WHO recommended 95% and above adherence, indicates that violence acts as a major barrier to consistent medication use. Consistent with this, Dow et al. (2020) in Tanzania found that emotional and physical abuse were linked to lower ART adherence, citing mental health challenges and reduced social support. Similarly, a longitudinal study among adolescent boys in South Africa, reported a significant association between higher exposure to violence over the course of the study with lower ART adherence (Inman et al., 2025).

Additionally, the 2022 UNAIDS Malawi country report identified violence as a structural determinant of suboptimal adolescent ART adherence. According to the UNAIDS (2022) report, violence-induced trauma can lead to avoidance behavior, memory lapses, and anxiety, all of which undermine treatment adherence.

5.4.1 Association Between Emotional Violence and ART Adherence

The logistic regression analysis provided robust statistical evidence of the negative impact of emotional violence on ART adherence. Adolescents who experienced emotional violence had 60% lower odds of adhering to ART (AOR = 0.40, 95% CI: 0.21–0.78, $p < 0.01$). This aligns with Nabunya et al. (2020), who found that emotional neglect in Uganda predicted poor ART adherence. Emotional violence, although less visible, causes psychological distress that severely impairs medication routines. The findings underscore the need for routine screening of emotional violence in HIV care programs.

5.4.2 Association Between Physical Violence and ART Adherence

After fitting in the logistic regression model, experiencing physical violence was associated with 58.8% reduced odds of adherence (AOR = 0.412, 95% CI: 0.20–0.87, $p = 0.019$). Adolescents in violent households may hide medication or avoid taking ART in front of abusers, compounding adherence challenges. This supports findings from Cluver et al. (2023) and Dow et al. (2020) that associates physical violence with ART adherence.

5.4.3 Association Between Sexual Violence and ART Adherence

Although the association between sexual violence and adherence was not statistically significant in the regression model (AOR = 0.55, $p = 0.091$), the trend was negative. Sexual violence contributes to Post-Traumatic Stress Disorder (PTSD), fear, and shame, which may indirectly affect clinic attendance and ART use.

As STI symptoms often trigger clinic visits, healthcare providers should use these opportunities to screen for possible sexual violence and offer integrated care.

5.5 Implications of these Study Results on Practice

The study findings have significant implications on adolescent HIV care and prevention programs. The study results add to the body of science, the negative effect of violence on adherence to antiretroviral therapy which leads to increased viral loads and poses the danger of disease progression and the risk for HIV transmission. Clinic attendance is also affected as adolescents exposed to violence may lack support and motivation to maintain clinic visits, they would run out of drugs leading to suboptimal adherence and poor health outcomes.

The results are also a call for an integrated, adolescent-friendly HIV care that addresses psychosocial factors and includes routine screening for all forms of violence. Host governments should prioritize teen clubs and support their existence other than leaving them to be run by donors as the pulling off of donor support easily affects teen club existence. Health facilities must be equipped with trained personnel to identify violence and provide mental health support, legal referrals, and social services. Additionally, STI clinics are an opportunity for tracing sexual violence among adolescents.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter summarizes the study findings, provides a conclusion and suggests recommendations.

6.2 Conclusions

Adolescents in Lilongwe Malawi report suboptimal adherence to ART and this is a risk to health outcome, including viral load suppression which the study also found to be low. These adolescents pose a risk for resistance, increased morbidity and mortality.

There is a strong association between experiences of violence and suboptimal ART adherence among ALWHIV in Lilongwe. Adolescents who reported no exposure to violence were over three times more likely to achieve optimal adherence. Violence assessment is lacking in most facilities and there is an opportunity to track sexual violence among adolescents reporting with STI in facilities in Lilongwe Malawi.

6.3 Facility and Community-Based Recommendations

6.3.1 Integration of Violence Screening into Routine HIV Care

Health facilities should incorporate standardized screening tools for emotional, physical, and sexual violence into adolescent HIV care. This can help identify at-risk individuals early and link them to appropriate support services.

6.3.2 Strengthening Psychosocial Support Services

Peer support groups, adolescent-friendly spaces, and counseling services should be expanded in ART clinics. These can serve as safe havens for adolescents to express their concerns, receive mental health support, and improve adherence behavior.

6.3.3 Capacity Building for Healthcare Workers

Train healthcare providers in trauma-informed care, adolescent psychology, and age specific and sensitive communication. This will improve provider-patient relationships and ensure that adolescents who have experienced violence including sexual violence receive empathetic, appropriate care.

6.3.4 Community Engagement and Awareness Campaigns

Engage community leaders, parents, and guardians in dialogue on the harmful effects of violence on adolescent health, particularly ART adherence. Community-based education programs can help challenge norms that condone violence and promote supportive caregiving.

6.3.5 Probing Sexual Violence in STI Clinics

STI clinics should be leveraged as platforms for tracing adolescents with sexual violence who may not have otherwise reported these cases under normal circumstances. STI service providers should be trained in delivering psychosocial support to adolescents, building rapport and probing if the sexual act that led to the STI was consensual or a result of violence, referrals should be made to legal practitioners.

6.4 Policy Recommendations

6.4.1 Adolescent-Focused Violence Prevention Policies

The Ministry of Gender, Community Development and Social Welfare, in collaboration with the Ministry of Health, should develop and enforce policies that protect adolescents from all forms of violence, especially those living with chronic illnesses such as HIV.

6.4.2 Strengthening Child Protection Systems

Government should strengthen reporting and referral systems, ensuring that cases of violence are addressed swiftly and that survivors receive legal and psychological support.

6.4.3 Cross-Sector Collaboration

Ministries responsible for health, education, and child welfare must work collaboratively to establish a national framework for addressing violence and its impact on health, especially HIV care for adolescents.

6.5 Recommendations for Further Research

6.5.1 Longitudinal Studies

Future research should employ longitudinal designs to establish causal relationships between violence and ART adherence over time.

6.5.2 Intervention Studies

Evaluating the effectiveness of integrated violence and HIV care interventions can provide evidence for scaling up best practices

REFERENCES

Adams, C., Kiruki, M., Karuga, R., Otiso, L., Graham, S. M., & Beima-Sofie, K. M. (2022). "Your status cannot hinder you": The importance of resilience among adolescents engaged in HIV care in Kenya. *BMC Public Health, 22*(1), 1272. https://doi.org/10.1186/s12889-022-13677-w

Adejumo, O. A., Malee, K. M., Ryscavage, P., Hunter, S. J., & Taiwo, B. O. (2015). Contemporary issues on the epidemiology and antiretroviral adherence of HIV-infected adolescents in sub-Saharan Africa: A narrative review. *Journal of the International AIDS Society*, 18(1), 20049.

Afeyo, T. A., Kauye, F., Mwale, D., & Mlenga, V. (2023). Factors associated with poor adherence to antiretroviral therapy among adolescents living with HIV in sub-Saharan Africa: A systematic review and meta-analysis. *PLoS One*, 18(6), e0289730.

Agroia, H., & Mousli, L. (2024). HIV self-testing during COVID-19 in Santa Clara County, California, USA. HIV & AIDS Review. *International Journal of HIV-Related Problems*, 23(1), 1-10.

Agyei-Baffour, N., Boakye, F. A., Bates, L. M., & Asare, M. (2020). The association between childhood and recent violence and psychiatric distress in early adulthood among females from low- and middle-income countries: A secondary analysis of data from the WHO multi-country study on women's health and gender. *Social Science & Medicine, 259*(1), 113172.

Agyemang-Boakye, F., Boakye, L. A., Bates, L. M., & Asare, M. (2020). Social and economic determinants of antiretroviral therapy adherence among adolescents living with HIV in sub-Saharan Africa: A systematic review. *Global Health*, 16(1), 1-13.

Alibi, M., Mwapasa, V., & Ngwalangwa, F. (2023). Retrospective cohort study comparing antiretroviral treatment outcomes among adolescents in Teen Clubs and Standard Care Clinics: Blantyre, Malawi. *Journal of the International Association of Providers of AIDS Care (JIAPAC), 22*, 23259582231172340.

Altamirano, J., Odero, I. A., Omollo, M., Awuonda, E., Ondeng'e, K., Kang, J. L., ... & Sarnquist, C. C. (2023). Understanding ART adherence among adolescent girls and young women in western Kenya: A cross-sectional study of barriers and facilitators. *International Journal of Environmental Research and Public Health*, *20*(20), 6922.

Anderson, B. C. (2020). *Developing organizational and managerial wisdom*. Kwantlen Polytechnic University.

Baylor College of Medicine Children's Foundation-Malawi. (2022). *Adolescent health services*. https://baylor-malawi.org/programs/

Betancourt, T. S., Meyers-Ohki, S. E., Charrow, A., & Hansen, N. (2013). Annual research review: Mental health and resilience in HIV/AIDS-affected children: A review of the literature and recommendations for future research. *Journal of Child Psychology and Psychiatry*, *54*(4), 423-444.

BIPAI. (2012). Teen club curriculum. https://www.texaschildrens.org/texas-childrens-global-health/programs/bipai/teen-club

Campbell, R., Mlenga, V., Chorwe-Sungani, G., & Kauye, F. (2020). Violence against children and HIV/AIDS: A global review. *Health and Policy Planning, 35*(7), 877-894.

Chesney, M. A., Ickovics, J. R., Chambers, D. B., Gifford, A. L., Neidig, J., Zwickl, B., ... & Patient Care Committee & Adherence Working Group of the Outcomes Committee of the Adult AIDS Clinical Trials Group (AACTG). (2000). Self-reported adherence to antiretroviral medications among participants in HIV clinical trials: The AACTG adherence instruments. *AIDS Care*, 12(3), 255-26.

Chiti, A. W., Kauye, F., Mwale, D., Chorwe-S, G., & Mlenga, V. (2023). Interlocking forms of violence and HIV among adolescent girls in Malawi: A qualitative study. *BMC Women's Health, 23*(1), 36.

Clum, G., Madkour, A. S., Judson, J., Tokarz, S., Smith, E., Stojanovski, K., ... & Theall, K. (2025). Pathways from violence exposure to medication non-adherence: Exploration of mental health symptoms and coping in people living with HIV in the US South. *AIDS Care, 37*(3), 372–383.

Cluver, L., Meinck, F., Toska, E., Orkin, F. M., Hodes, R., & Sherr, L. (2018). Multitype violence exposures and adolescent antiretroviral nonadherence in South Africa. *AIDS, 32*(8), 975–983.

Cluver, L. D., Zhou, S., Orkin, M., Rudgard, W., Meinck, F., Langwenya, N., Vicari, M., Edun, O., Sherr, L., & Toska, E. (2023). Impacts of intimate partner

violence and sexual abuse on antiretroviral adherence among adolescents living with HIV in South Africa. *AIDS, 37*(3), 503-511.

Dow, D. E., Mmbaga, B. T., Gallis, J. A., Turner, E. L., Gandhi, M., Cunningham, C. K., & O'Donnell, K. E. (2020). A group-based mental health intervention for young people living with HIV in Tanzania: Results of a pilot individually randomized group treatment trial. *BMC Public Health, 20*, 1-13.

Eaton, L. A., Mwale, D., Chorwe-Sungani, G., & Mlenga, V. (2020). Violence against children and HIV risk in sub-Saharan Africa: A systematic review. *AIDS,* 34(11), 1367-1380.

Enane, L. A., Vreeman, R. C., & Foster, C. (2018). Retention and adherence: Global challenges for the long-term care of adolescents and young adults living with HIV. *Current Opinion in HIV and AIDS, 13*(3), 212-219. https://journals.lww.com/co-hivandaids/abstract/2018/05000/retention_and_adherence__global_challenges_for_the.8.aspx

Faidas, M., Stockton, M. A., Mphonda, S. M., Sansbury, G., Hedrick, H., Devadas, J., ... & Gaynes, B. N. (2024). Stigma and discrimination faced by adolescents living with HIV and experiencing depression in Malawi. *BMC Global and Public Health, 2*(1), 39.

Ferradini, L., Pirola, F., Marangoni, F., Longoni, P., Galli, M., & Riva, M. (2019). Do self-reported adherence measures correlate with actual medication intake and viral load in HIV-positive people? *AIDS and Behavior, 23*(10), 2777-2785.

Foster, C., Ayers, S., & Fidler, S. (2020). Antiretroviral adherence for adolescents growing up with HIV: Understanding real life, drug delivery and forgiveness. *Therapeutic Advances in Infectious Disease, 7*(1), 1-12.

Gignac, G. E., & Szodorai, E. T. (2016). Effect size guidelines for individual differences researchers. *Personality and Individual Differences, 102*(1), 74-78.

Girum, T., Yasin, F., Wasie, A., Shumbej, T., Bekele, F., & Zeleke, B. (2020). The effect of "universal test and treat" program on HIV treatment outcomes and patient survival among a cohort of adults taking antiretroviral treatment (ART) in low income settings of Gurage zone, South Ethiopia. *AIDS Research and Therapy, 17*(1), 1-9.

Hanifah, A., Widianti, E., & Yudianto, K. (2018). Learning concentration level of students at Faculty of Nursing Universitas Padjadjaran (An overview of the Z generation). *Journal of Nursing Care, 1*(3), 1-11.

Heale, R., & Twycross, A. (2015). Validity and reliability in quantitative studies. *Evidence-Based Nursing, 18*(3), 66-67.

Hillis, S. L., Mercy, J. A., Amobi, A., & Kress, H. (2016). Global prevalence of intimate partner violence against women and men: Results from the WHO multi-country study on women's health and gender and the WHO multi-country study on men and health. *Theoretical Economics Letters, 14*(5), 1770-1781.

Hlophe, L. D., Tamuzi, J. L., Shumba, C. S., & Nyasulu, P. S. (2023). Barriers and facilitators to antiretroviral therapy adherence among adolescents aged 10 to 19

years living with HIV in sub-Saharan Africa: A mixed-methods systematic review and meta-analysis. *PLoS One, 18*(5), e0276411.

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression*. John Wiley & Sons.

Inman, E. M., Zhang, X., Madi, P., Ramsammy, C. W., Hammock, A. C., Violari, A., & Kidman, R. (2025). Violence as an obstacle to HIV medication adherence and viral suppression: A daily diary investigation among adolescent boys. *Social Science & Medicine* (1982), 364, 117549. https://doi.org/10.1016/j.socscimed.2024.117549

Karanja, P., Kauye, F., Mwale, D., & Muula, A. S. (2019). Social determinants of antiretroviral therapy adherence among adolescents living with HIV in sub-Saharan Africa: A systematic review. *PLoS One, 14*(2), e0212168.

Kaunda-Khangamwa, B. N., Kapwata, P., Malisita, K., Munthali, A., Chipeta, E., Phiri, S., & Manderson, L. (2020). Adolescents living with HIV, complex needs and resilience in Blantyre, Malawi. *AIDS Research and Therapy, 17*(1), 35. https://doi.org/10.1186/s12981-020-00292-1

Kayuni, S. F., Mwale, D., Chorwe-Sungani, G., & Mlenga, V. (2020). Sexual violence against adolescent girls and HIV infection risk in Malawi: A cross-sectional study. *BMC Public Health, 20*(1), 1514.

Khangamwa, K. B., J., V., Kauye, F., Mwale, D., & Muula, A. S. (2020). Addressing challenges faced by adolescents living with HIV in Malawi: An analysis of the

effectiveness of teen club ART delivery model. *Global Journal of Health Science, 12*(8), 156-165.

Khonje-Mvula, H., Chorwe-Sungani, G., Mlenga, V., Mzumara, A., Muula, A. S., Phiri, T., & Kauye, F. (2021). Violence against children and young women in Malawi: Results from the 2013–2014 Malawi Violence against Children and Young Women Survey. *Journal of Interpersonal Violence, 36*(17-18), 3255-3281.

Kim, M. H., Mazenga, A. C., Yu, X., Ahmed, S., Paul, M. E., Kazembe, P. N., & Abrams, E. J. (2017). High self-reported non-adherence to antiretroviral therapy amongst adolescents living with HIV in Malawi: Barriers and associated factors. *Journal of the International AIDS Society, 20*(1), 21437.

Kim, S. H., Gerver, S. M., Fidler, S., & Ward, H. (2014). Adherence to antiretroviral therapy in adolescents living with HIV: Systematic review and meta-analysis. *AIDS, 28*(13), 1945-1956.

Kim, J. Y., Yang, Y., & Kim, H. K. (2018). The impact of alcohol use on antiretroviral therapy adherence in Koreans living with HIV. *Asian Nursing Research, 12*(4), 258-264.

Kip, E. C., Udedi, M., & Kulisewa, K. (2022). Stigma and mental health challenges among adolescents living with HIV in selected adolescent-specific antiretroviral therapy clinics in Zomba District, Malawi. *BMC Pediatrics, 22*(1), 253. https://doi.org/10.1186/s12887-022-03292-4

Kip, K. E., Kamndaya, M., Chorwe-Sungani, G., & Mlenga, V. (2022). The economic cost of poor adherence to antiretroviral therapy in sub-Saharan Africa: A systematic review. *AIDS, 36*(8), 907-918.

Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education, 7*(6), 44-53.

Kranzer, K., Bradley, J., Musaazi, J., Nyathi, M., Gunguwo, H., Ndebele, W., ... & Ferrand, R. A. (2017). Loss to follow-up among children and adolescents growing up with HIV infection: Age really matters. *Journal of the International AIDS Society, 20*(1), 21737.

Malawi National Statistical Office. (2016). *Demographic Health Survey*. Malawi National Statistical Office.

Malawi Population-based HIV Impact Assessment (PHIA). (2021). *Malawi final report*. https://phia.icap.columbia.edu/malawi-final-report-2020-2021/

Malawi Spectrum estimates (Naomi model, 2023). *Malawi HIV subnational estimates*. Available online at: https://dms.hiv.health.gov.mw/dataset/malawi-hiv-subnational-estimates-naomi-model-2023

Masiano, M., Mlenga, V., Chorwe-Sungani, G., & Kauye, F. (2023). Violence against adolescents living with HIV in Malawi: A call for action. *Journal of Adolescent Health, 82*(1), 100-102.

Merrill, K., Cervantes, D., Hebden, J. N., Pogorzelska-Maziarz, M., Piatek, D., Monsees, E., & Hessels, A. (2024). Infection preventionists in public health,

consultant and academic roles: Results from the 2020 APIC Mega Survey. *American Journal of Infection Control*, *52*(3), 261-266.

Ministry of Health, Malawi. (2020). *National HIV and AIDS Strategic Plan 2020-2023*. Lilongwe: Ministry of Health.

Ministry of Health, Malawi. (2023). *HIV care and treatment Annual Report 2022*. Lilongwe: Ministry of Health.

Mokdad, A. H., Forouzanfar, M. H., Daoud, F., Mokdad, A. A., El Bcheraoui, C., Moradi-Lakeh, M., ... & Vos, T. (2016). Global, regional, and national burden of HIV, hepatitis B, and hepatitis C in 2014: Summary results from the Global Burden of Diseases, Injuries, and Risk Factors 2014 Study. *The Lancet Global Health*, *4*(11), e736-e781.

Nabunya, P., Damulira, C., Byansi, W., Muwanga, J., Bahar, O. S., Namuwonge, F., ... & Ssewamala, F. M. (2020). Prevalence and correlates of depressive symptoms among high school adolescent girls in southern Uganda. *BMC Public Health*, 20, 1-11.

Nyirenda, D., Mkandawire, P., Nkanaunena, K., & Muula, A. S. (2022). Factors associated with inadequate adherence to antiretroviral therapy among adolescents living with HIV in Malawi: A cross-sectional study. *Journal of International AIDS Society*, *25*(2), 1-10.

Partners in Hope. (2023). *HIV services*. https://pihmalawi.com

President's Emergency Plan For AIDS Relief (PEPFAR). (2022). *PEPFAR Country Operational Plan FY 2023 for Malawi*. Washington, D.C.: President's Emergency Plan for AIDS Relief.

Pilgrim, N., Mwapasa, V., Chipeta, E., Chimwaza Manda, W., Jani, N., McClair, T., ... & Mathur, S. (2020). *Evidence to support HIV prevention for adolescent girls and young women (AGYW) and their male partners: Results from Malawi Dreams studies with AGYW, male partners of AGYW, men living with HIV, and program implementing partners*. Project SOAR Final Report. Washington, DC: USAID.

Rukuni, A., Munyati, S., Mutsai, S., Midzi, H., Ndebele, W., Cowan, F. M., & Nyamukapa, C. (2020). Improved survival among HIV-exposed infants contributes to the increasing number of adolescents living with HIV in sub-Saharan Africa: Results from a multi-country analysis. *AIDS*, *33*(2), 237-245.

Rukuni, R., Gregson, C., Kahari, C., Kowo, F., McHugh, G., Munyati, S., Mujuru, H., Ward, K., Filteau, S., Rehman, A. M., & Ferrand, R. (2020). The impact of vertical HIV infection on child and adolescent skeletal development in Harare, Zimbabwe (IMVASK Study): A protocol for a prospective cohort study. *BMJ Open*, 10(2), e031792. https://doi.org/10.1136/bmjopen-2019-031792

Saidi, F., Mutale, W., Freeborn, K., Rosenberg, N., Graybill, L., Maman, S., Amico, R., & Chi, B. H. (2021). Combination adherence strategy to support HIV antiretroviral therapy and pre-exposure prophylaxis adherence during pregnancy and breastfeeding: Protocol for a pair of pilot randomised trials. *BMJ*

Open, *11*(6), e046032. https://bmjopen.bmj.com/content/bmjopen/11/6/e046032.full.pdf

Sarkar, S., Das, S., Chowdhury, P., Dutta, S., Banerjee, S., & Ghosh, A. (2022). A review of methods for measuring medication adherence in HIV/AIDS patients: Challenges and opportunities. *Journal of Medical Research, 27*(1), 1-12.

Schoenbaum, M. A., Fernandez, N., Taylor, L., Taiwo, B., Mugahi-Saitoti, E., & Weiser, S. D. (2019). An evidence-based framework for optimal adherence support interventions in HIV. *AIDS, 33*(1), 11-23.

Schrubbe, L., García-Moreno, C., Sardinha, L., & Stöckl, H. (2023). Intimate partner violence against women during pregnancy: A systematic review and meta-analysis protocol for producing global and regional estimates. *Systematic Reviews, 12*(1), 107.

Seunanden, T. C., Ngwenya, N., & Seeley, J. (2025). Experiences and perceptions on antiretroviral therapy adherence and non-adherence: A scoping review of young people living with HIV in sub-Saharan Africa. *BMC Public Health, 25*(1), 1450.

Syukriani, Y., Noviandhari, A., & Arisanti, N. (2022). A cross-sectional survey of underreported violence experienced by adolescents: A study from Indonesia. *BMC Public Health, 22*, 50. https://doi.org/10.1186/s12889-021-12427-8

Tembo, M., Mwale, D., Chorwe-Sungani, G., & Mlenga, V. (2022). Association between childhood and intimate partner violence and HIV status among women in Malawi: A secondary data analysis. *Journal of Interpersonal Violence, 37*(1), 33-48.

UNAIDS. (2014). *Issues new Fast-Track Strategy to End AIDS by 2030*. https://pedaids.org/2014/11/20/unaids-issues-new-fast-track-strategy-to-end-aids-by-2030

UNAIDS. (2022). *Focus on Malawi*. https://www.unaids.org/en/20190402_country_focus_Malawi

United Nations Children's Fund. (2020). *Ending violence against children in humanitarian settings: Global Guidance for Implementation*. New York: United Nations Children's Fund.

United Nations Children's Fund. (2022). *Statistical update on HIV/AIDS among children and adolescents*. https://data.unicef.org/topic/hivaids/global-regional-trends/

United Nations International Children's Emergency Fund (UNICEF). (2023). *HIV/AIDS among children and adolescents: Fact sheet*. https://data.unicef.org/topic/hivaids/global-regional-trends/

United Nations Programme on HIV/AIDS. (2023). *HIV estimates 2024*. https://www.unaids.org/en/dataanalysis/knowyourresponse/HIVdata_estimates

Vander E. C., Mwale, D., Chorwe-Sungani, G., & Mlenga, V. (2019). Physical violence and HIV risk among adolescents living in rural South Africa: A cross-sectional study. *PLoS One*, *14*(12), e0224058.

Wamalala, J. M., Silungwe, E., Mwale, D., & Muula, A. S. (2021). Antiretroviral therapy adherence among adolescents living with HIV in sub-Saharan Africa: A systematic review and meta-analysis. *AIDS*, 35(10), 1387-1400.

World Health Organization. (2020). *Guidelines for the use of antiretroviral therapy in adults, adolescents and children living with HIV: Recommendations for a public health approach*. Geneva: World Health Organization. https://www.who.int/health-topics/hiv-aids

Zhou, S., Cluver, L., Shenderovich, Y., & Toska, E. (2021). Uncovering ART adherence inconsistencies: An assessment of sustained adherence among adolescents in South Africa. *Journal of the International AIDS Society, 24*(10), e25832.

Zurbachew, Y., Hiko, D., Bacha, G., & Merga, H. (2023). Adolescent's and youth's adherence to antiretroviral therapy for better treatment outcome and its determinants: Multi-center study in public health facilities. *AIDS Research and Therapy, 20*(1), 91-98.

APPENDICES

Appendix 1: Parental/Guardian Informed consent document (English version)

Only for parents of children below the age of 18

Study Title: Association between violence and adherence to antiretroviral therapy: A case of HIV-infected adolescents in Lilongwe, Malawi.

Name and Contact of Principal Investigator:

Virginia Thonyiwa, MPH Student, Amref International University, P.O. BOX 27691-00506, Nairobi, Kenya.
Cell: +265 999 334 349
Email: virginiathonyiwa@gmail.com

NHSRC Contacts in case of questions:

Dr. Evelyn Chitsa Banda
Phone contact: +265 999 936 937
Email: research@health.gov.mw / mohdoccentre@gmail.com

Introduction:

Your child is invited to participate in a research study conducted by a Master of Public Health student from Amref International University, School of Community Health, Kenya. This study is being conducted as part of the course requirement.

Purpose of the Study:

The purpose of this study is to assess the association between violence and adherence to antiretroviral therapy (ART) among HIV-infected adolescents in Lilongwe, Malawi.

Procedures:

Your child's participation in this study is voluntary. If you agree to allow your child to participate, they will be asked to answer questions about their adherence to antiretroviral drugs and any experiences of violence. They will be asked to recall how they have taken or missed their medication in the past and any experiences of violence in any form (emotional, physical, or sexual). Your child has the right to decline participation or withdraw at any time without any consequences.

Benefits:

There are no direct benefits to your child for participating in this study. However, the findings may benefit society by informing policies and programs aimed at improving adolescent ART adherence and addressing issues related to violence, ultimately reducing morbidity and mortality rates associated with poor adherence.

Risks:

There are no known risks associated with participation in this study. However, if your child experiences any distress while discussing sensitive topics, they will be provided with appropriate support.

Privacy and Confidentiality:

Your child's privacy will be strictly protected. All responses will be anonymous, and no personal identification information will be collected. Data will be stored securely in a password-protected file, accessible only to the study investigator.

Study Approval:

This study has been approved by Amref International University, Kenya, and the National Health Science Research Committee (NHSRC) approval number 4599. Do you have any questions? (Provide answers to any questions asked.)

Study site
The study is being implemented in 3 facilities, Area 25, Mtenthera and Baylor college of medicine

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Parental/Guardian Consent & Signature:

Do you consent for your child to participate in this study?

□ **Yes** (Sign consent and proceed with the study)

□ **No** (Decline participation)

Parent/Guardian's Name: _____

Signature: _____**Date:** _____/_____/2025

Researcher's Name: _____

Researcher's Signature:_____Date: _____/_____/2025

Witness Name: _____

(only in case of illiterate parent/ guardian)

Witness Signature: _____ Date:_____/_____/2025

Appendix 2: Parental/Guardian Informed consent document (Chichewa version)

Kwa Makolo kapena oyanganira ana osaposera zaka 18

Mutu wa Kafukufuku

Kugwirizana pakati pa nkhanza ndi kutsatira ndondomeko ya kumwa mankhwala a antiretroviral therapy (ART) mwa achinyamata omwe ali ndi kachilombo ka HIV ku Lilongwe, Malawi.

Dzina ndi Zambiri za Wofufuza

Virginia Thonyiwa, Wophunzira wa MPH, Amref International University,P.O. BOX 27691-00506, Nairobi, Kenya.

Foni: +265 999 334 349. **Imelo**: virginiathonyiwa@gmail.com

Ngati muli ndi mafunso ku NHSRC: Dr. Evelyn Chitsa Banda

Foni: +265 999 936 937 Imelo: research@health.gov.mw / mohdoccentre@gmail.com

Chiyambi:

Mwana wanu wayitanidwa kuti atenge nawo mbali mu kafukufuku amene akuchitidwa ndi wophunzira wa Master of Public Health kuchokera ku Amref International University, School of Community Health, ku Kenya. Kafukufukuyu ndi mbali ya zofunikira pa maphunziro ake.

Cholinga cha Kafukufuku:

Cholinga cha kafukufukuyu ndi kufufuza momwe nkhanza zimakhudzira kutsatira ndondomeko ya kumwa mankhwala a ART mwa achinyamata omwe ali ndi HIV ku Lilongwe, Malawi.

Njira za Kafukufuku:

Kutenga nawo mbali kwa mwana wanu pa kafukufukuyu ndi kwa kufuna kwanu. Ngati mukuvomera, mwana wanu adzafunsidwa mafunso okhudza momwe amamwera mankhwala a ART komanso ngati adakumanapo ndi nkhanza (m'maganizo, m'thupi, kapena zogonana). Mwana wanu ali ndi ufulu wokana kapena kusiya kafukufukuyu nthawi iliyonse popanda chilango chilichonse.

Ubwino: Palibe ubwino watsopano woti mwana wanu angapeze mwachindunji chifukwa chotenga nawo mbali. Komabe, zotsatira za kafukufukuyu zingathandize anthu ambiri pokonza ndondomeko ndi mapulogalamu othandiza achinyamata kutsatira kumwa mankhwala awo bwino komanso kuthana ndi nkhanza.

Zoopsa: Palibe zoopsa zomwe zimadziwika chifukwa chotenga nawo mbali mu kafukufukuyu. Komabe, ngati mwana wanu atapeza nkhawa kapena chisoni chifukwa cha mafunso ena, athandizidwa ndi anthu oyenera.

Chinsinsi ndi Kutetezedwa kwa Zambiri:

Zambiri za mwana wanu zizikhala zachinsinsi ndipo sadzatchulidwa mwachindunji. Zonse zomwe zidzasonkhanitsidwe zidzakhala zotetezedwa mu fayilo yotetezedwa ndi mawu achinsinsi, ndipo wofufuza yekha ndiye adzakhala ndi mwayi wozipeza.

Chilolezo cha Kafukufuku: Kafukufukuyu wavomerezedwa ndi Amref International University ku Kenya ndi National Health Science Research Committee (NHSRC) ku Malawi.

Chivomerezo cha Makolo/Woyang'anira Mwanayo:

Kodi muli ndi mafunso? (Yankhani mafunso aliwonse omwe angafunsidwe.)

Mukuvomera kuti mwana wanu atenge nawo mbali mu kafukufukuyu?

☐ Inde (Lembani dzina lanu ndi kusaina) ☐ Ayi (Mukukana kutenga nawo mbali)

Malo opangila kafukufuku: Kafukufukuyu akuchitikira zipatala zitatu:, Area 25, Mtenthera ndi Baylor college of medicine

Dzina la Makolo/Woyang'anira: _____

Chisaini/ Chidindo: _____Tsiku: _____/_____/2025

Dzina la Wofufuza: _____

Chisaini: _____ Tsiku: _____/_____/2025

Dzina la Mboni: _____

(Mboni alembe ngati makolo/ oyanganira sadziwa kulemba)

Saini: _____Tsiki____/____/2025

Appendix 3 Child Assent Form (English version)

For all adolescents below the age of 18

Study Title: *Association Between Violence and Adherence to Antiretroviral Therapy: A Case of HIV-Infected Adolescents in Lilongwe, Malawi*

Principal Investigator: Virginia Thonyiwa, MPH Student, Amref International University

Contact Information: +265 999 334 349 | virginiathonyiwa@gmail.com

NHSRC Contact: Dr Evelyn Chitsa Banda, NHSRC, P.O. Box 30377, Lilongwe 3, Malawi phone: +265999936937

Why are we doing this research?

We want to learn how violence affects how young people take their HIV medicine. This will help us find better ways to support them.

What will happen if you say yes?

If you agree to be in this study, we will ask you some questions about your health, how you take your medicine, and if you have had any experiences with violence in any form (emotional, physical, or sexual). You can choose not to answer any question if you don't want to.

Will this hurt or be bad for you?

No, this study will not hurt you. However, if you experience any distress while discussing sensitive topics, you will be provided with appropriate support.

Will this help you?

This study may not help you directly, but it may help other young people in the future by improving support for those taking HIV medicine.

Do you have to be in the study?

No, you don’t have to be in the study if you don’t want to. If you decide to start but later change your mind, you can stop anytime. No one will be upset with you.

Who can you ask if you have questions?

If you have any questions, you can ask the researcher, a doctor, or another adult you trust. You can ask questions anytime.

Signing below means:

Someone has explained the study to me.

I had a chance to ask questions.

I want to participate in the study.

Child’s Name (Printed): _____

Child’s Signature: _____Date: ____/_____/2025

Researcher’s Name (Printed): _____

Researcher’s Signature: _____Date: _____/_____/2025

Appendix 4: Child Assent Form (Chichewa Version)

Kwa achinyamata osakwana zaka 18

Mutu wa Kafukufuku: Kugwirizana pakati pa nkhanza ndi kutsatira ndondomeko ya kumwa mankhwala a antiretroviral therapy (ART) mwa achinyamata omwe ali ndi kachilombo ka HIV ku Lilongwe, Malawi.
Wofufuza Wamkulu: Virginia Thonyiwa, Wophunzira wa MPH, Amref International University
Zambiri Zothandizira Kulumikizana: +265 999 334 349 | virginiathonyiwa@gmail.com
Wolumikizana naye ku NHSRC: Dr Evelyn Chitsa Banda, NHSRC, P.O. Box 30377, Lilongwe 3, Malawi phone: +265999936937

Chifukwa Chani Tikuchita Kafukufuku?

Tikufuna kudziwa momwe nkhanza zimakhudzira mmene achinyamata amamwera mankhwala awo a HIV. Izi zithandiza kuti tipeze njira zabwino zothandizira iwo.

Zimene Mudzachita Mukavomera

Ngati mwavomera kutenga nawo mbali, tikufunsani mafunso okhudza thanzi lanu, momwe mumamwerera mankhwala anu, ndi ngati mwakumana ndi nkhanza zilizonse monga nkhanza za mmaganizo, nkhanza za pathupi komanso nkhanza zo gonana kapena kugwililidwa. Muli ndi ufulu wosayankha funso lililonse lomwe simukufuna kuyankha.

Kodi Izi Zikhoza Kukuvulazani?

Ayi, kafukufukuyu sakuvulazani. Ngati mungapeze nkhawa kapena chisoni chifukwa cha mafunso ena, muzathandizidwa ndi anthu oyenera.

Kodi Izi Zingakuthandizeni?

Kafukufukuyu sangakuthandizeni mwachindunji, koma mungathandize achinyamata ena mtsogolo pakupeza chithandizo chabwino pa kumwa mankhwala a HIV.

Kodi Muyenera Kutenga Nawo Bwanji?

Ayi, simukukakamizidwa. Ngati simukufuna kutenga nawo mbali, palibe vuto. Ngati mungasinthe maganizo anu mutayamba, muthanso kuyimitsa kafukufukuyi nthawi iliyonse, ndipo palibe amene adzakwiya nanu.

Ngati Muli Ndi Mafunso?

Ngati muli ndi mafunso, mutha kufunsa wofufuza, dokotala, kapena munthu wina wamkulu amene mumamukhulupirira. Mutha kufunsa mafunso nthawi iliyonse.

Kusaina Kumatanthauza:

Wina wandifotokozera za kafukufukuyu.
Ndinali ndi mwayi wofunsa mafunso.
Ndikufuna kutenga nawo mbali mukafukufukuyu.
Dzina la Mwana (Lolembedwa): _____
Saini ya mwana: _____Tsiku___/___/2025
Dzina la Wofufuza (Lolembedwa):_____
Saini cha Wofufuza: _____Tsiku___/___/2025

Appendix 5: Informed consent document (English version) Adolescents 18yrs and above

Study Title: Association between violence and adherence to antiretroviral therapy: a case of HIV-infected adolescents in Lilongwe, Malawi.

Name and contact of Principal Investigator: Virginia Thonyiwa, MPH Student, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya.

Cell: +265 999 334 349 Email address: virginiathonyiwa@gmail.com

NHSRC Contacts: Dr Evelyn Chitsa Banda Phone: +265999936937
Email: research@health.gov.mw/mohdoccentre@gmail.com

I**ntroduction:** You are asked to participate in this study; the study is being conducted by a master's in public health student of Amref International University, School of Community Health, Kenya and as part of the course requirement.

Purpose: The purpose of the study is to assess the association between violence and adherence to antiretroviral therapy among HIV-infected adolescents in Lilongwe, Malawi.

Procedures: Participation in this study is voluntary. Suppose you accept to participate in the study. In that case, you will be required to answer some questions about yourself and how you take your antiretroviral drugs and experience violence. The study involves you to recall how you have taken or missed your pills in the past and any experience of violence in any form (emotional, physical or sexual). The decision whether to participate in the study is entirely up to you. You are free to decline to participate or withdraw from the interview at any point.

Benefits: There are no direct benefits to individuals but to the society as a whole and the health care system. The outcome of this study might be used to help adolescent ART programming in Malawi to come up with innovative interventions that will enable

improvement of adolescent's adherence to ART and mitigate issues of violence, hence reducing the number of morbidity and mortality rates which increase with non-adherence to antiretroviral therapy in the country.

Risks: Your participation in the study involves no risk.

Privacy and Confidentiality: Your privacy in this study is assured. All questionnaires will be assigned numbers, and respondents' names or codes to trace respondents will not be used in analysis and report writing. All the information will be kept confidential in a password-protected electronic file, and access to the protected file will be limited to the study investigator only.

Study Approval: This study has been approved by Amref International University, Kenya and the National Health Science Research Committee (NHSRC) Malawi. For any questions on the rights of participants in this study, please contact the Chairperson, NHSRC, P.O. Box 30377, Lilongwe 3, Malawi you may also contact The Dean of Post Graduate studies, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya.

Study site
The study is being implemented in 3 facilities, Area 25, Mtenthera and Baylor college of medicine

Consent & Signature: Do you have any questions? (Provide answers to questions asked) Do you allow me to participate in this study:

1. ☐ Yes *(sign consent and continue with questionnaire)* 2.☐ No *(Stop)*

Respondents **Name:** _____

Signature: _____**Date:** _____/_____/2025

Researcher's Name: _____

Researcher's Signature:_____Date: _____/_____/2025

For illiterate respondent put their thumbprint and let a witness co-sign with the researcher

Respondent's (If illiterate) Right thumbprint: _____

Witness Name: _____

(only in case of illiterate respondent

Witness Signature: _____ Date:_____/_____/2025

Appendix 6: Informed consent document (Chichewa version) Adolescents 18 years and above

Study Title: Association between violence and adherence to antiretroviral therapy: a case of HIV-infected adolescents in Lilongwe, Malawi.

Dzina ndi keyala ya Mfufuzi: Virginia Thonyiwa, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya. Cell: +265 999 334 349 Email address: virginiathonyiwa@gmail.com

NHSRC Contacts: Dr Evelyn Chitsa Banda Phone: +265999936937
Email: research@health.gov.mw/mohdoccentre@gmail.com

Mau oyamba: Mukupemphedwa kutenga nawo mbali mukafukufukuyu; kafukufuku akuchitika ndi mphunzi wa Masters mu Public Health wa Amref Internationsl University School Community Health (Kenya) ndi ngati mbali imodzi ya zofunikira za maphunzirowa.

Cholinga: Cholinga chakafukufuku ndi kuona zinthu zimene zimasokoneza kusakhulupilika pa kamwedwe ka ma ARV Kwa anyamata ndi atsikana omwe ali ndi kachirombo ka HIV pa kiliniki ino ya ARV.

Ndondomeko: Kutenga nawo mbali mukafukufukuyu ndi kodzipereka (mwakufuna kwanu). Ngati mwavomera kutenga nawo mbali mukafukufuku, mudzafunika kuyankha mafunso ena okhudza inu ndi m'mene mumamwera ma ARVs. Kafukufuku akukhudza inu kuti mukumbukira m'mene mwakhalira mukumwera kapena kuiwala mapilisi anu pa mwezi wapitawu. Mapilisi amene mwabweretsa lero adzawerengedwanso kuti tiwone m'mene mukukhulupilikira kumwa mankhwalawa. Chisankho chofuna kutenga nawo mbali mukafukufuku ndi chochokera kwa inu mosaumilizidwa. Muli ndi ufulu osatenga nawo mbali kapena kuchoka pa zofunsidwa pa nthawi ina ili yonse.

Phindu: palibe phindu lowonekeratu kwa anthu koma ku mtundu wa anthu pamodzi ndi a za chisamaliro cha zaumoyo. Zotsatira za kafukufukuyu zitha kudzagwiritsidwa ntchito pothandiza ogwira ntchito pa kiliniki ya ma ARV ya ku pulogalamu ya teenclub madera ena amene ali ndi ma kiliniki a ma ARV ku Malawi kuti abweretsa njira zothandiza zimene zingalimbikitse a zaumoyo ndi kuthandiza kusintha kwa achinyamata pakamwedwe ka ma ARVs,kumene kudzachepetse chiwerengero cha imfa zimene zimachuluka kaamba kosamwa ma ARV moyenera mu dziko lino.

Chiopsyezo: Kutenga nawo mbali mukafukufuku sikukuikani pa chiopsyezo chirichonse cha moyo wanu.

Chinsinsi ndi kusaulula: Chinsinsi chanu ndi chotsimikizika.Zikalata zonse zamafunso zidzapatsidwa manambala ndi dzina la oyankha kapena kodi kuti akamuyendere woyankha sizidzagwiritsidwa ntchito pounika za m'mene kafukufuku wayendera ndi polemba malipoti. Uthenga wonse udzasungidwa mwachinsinsi mu failo yotetezedwa ndi mau achinsinsi ya magetsi ndipo okhala ndi mwayi otsegula failo yotetezedwayo adzakhala yekhayo amene akupangitsa kafukufukuyu basi.

Kuvomereza Kafufufuku: Kafukufukuyu ndiovemerezeka ndi Univesite ya Amref International University, Kenya komanso bungwe loona zokhudza kafukufuku kuMalawi kuno la National Health Science Research Committee (NHSRC).. Komanso mukhonza kulumikizana ndi Wankulu wa sukulu yoposera ukachenjede, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya.

Malo opangila kafukufuku:
Kafukufukuyu akuchitikira zipatala zitatu:, Area 25, Mtenthera ndi Baylor college of medicine

Kuvomereza ndi kusaina: Kodi muli ndi funso lili lonse? (perekani mayankho pa mafunso amene afunsidwa) kodi mukuvomera kutenga nawo mbali mukafukufukuyu:

1.☐ Inde *(sign consent and continue with questionnaire)* 2 ☐ Ayi *(Stop)*

Dzina la Woyankha: _____
Chisaini/ Chidindo: _____Tsiku: _____/____/2025
Dzina la Wofufuza: _____

Chisaini cha ofufuza_____ Tsiku: ____/____/2025
Dzina la Mboni: _____
(mboni alembe ngati otenga nawo mbali sadziwa kulemba)
Chisaini ya mboni_____Tsiku____/____/2025

Appendix 7: Informed consent document (English version) for Key Informants

Study Title: Association between violence and adherence to antiretroviral therapy: a case of HIV-infected adolescents in Lilongwe, Malawi.

Name and contact of Principal Investigator: Virginia Thonyiwa, MPH Student, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya. Cell: +265 999 334 349 Email address: virginiathonyiwa@gmail.com

NHSRC Contacts: Dr Evelyn Chitsa Banda Phone: +265999936937
Email: research@health.gov.mw/mohdoccentre@gmail.com

Introduction: You are asked to participate in this study; the study is being conducted by a master's in public health student of Amref International University, School of Community Health, Kenya and as part of the course requirement.

Purpose: The purpose of the study is to assess the association between violence and adherence to antiretroviral therapy among HIV-infected adolescents in Lilongwe, Malawi.

Procedures: Participation in this study is voluntary. Suppose you accept to participate in the study. In that case, you will be required to answer some questions about yourself and how you take your antiretroviral drugs and experience violence. The study involves you to recall how you have taken or missed your pills in the past and any experience of violence in any form (emotional, physical or sexual). The decision whether to participate in the study is entirely up to you. You are free to decline to participate or withdraw from the interview at any point.

Benefits: There are no direct benefits to individuals but to the society as a whole and the health care system. The outcome of this study might be used to help adolescent ART programming in Malawi to come up with innovative interventions that will enable improvement of adolescent's adherence to ART and mitigate issues of violence, hence

reducing the number of morbidity and mortality rates which increase with non-adherence to antiretroviral therapy in the country.

Risks: Your participation in the study involves no risk.

Privacy and Confidentiality: Your privacy in this study is assured. All questionnaires will be assigned numbers, and respondents' names or codes to trace respondents will not be used in analysis and report writing. All the information will be kept confidential in a password-protected electronic file, and access to the protected file will be limited to the study investigator only.

Study Approval: This study has been approved by Amref International University, Kenya and the National Health Science Research Committee (NHSRC) Malawi. For any questions on the rights of participants in this study, please contact the Chairperson, NHSRC, P.O. Box 30377, Lilongwe 3, Malawi you may also contact The Dean of Post Graduate studies, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya.

Study site

The study is being implemented in 3 facilities, Area 25, Mtenthera and Baylor college of medicine

Consent & Signature: Do you have any questions? (Provide answers to questions asked) Do you allow me to participate in this study:

1. ☐ Yes *(sign consent and continue with questionnaire)* 2.☐ No *(Stop)*

Respondents Name: _____

Respondents' Signature: _____Date: _____/_____/2025

Researcher's Name: _____

Researcher's Signature:_____Date: _____/_____/2025

For illiterate respondent put their thumbprint and let a witness co-sign with the researcher

Respondent's (If illiterate) Right thumbprint: _____

Witness Name: _____

(only in case of illiterate respondent

Witness Signature: _____ Date:_____/_____/2025

Appendix 8: Informed consent document (Chichewa version)_Key Informants

Study Title: Association between violence and adherence to antiretroviral therapy: a case of adolescents living with HIV in Lilongwe, Malawi.

Dzina ndi keyala ya Mfufuzi: Virginia Thonyiwa, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya. Cell: +265 999 334 349 Email address: virginiathonyiwa@gmail.com

NHSRC Contacts: Dr Evelyn Chitsa Banda Phone: +265999936937

Email: research@health.gov.mw/mohdoccentre@gmail.com

Mau oyamba: Mukupemphedwa kutenga nawo mbali mukafukufukuyu; kafukufuku akuchitika ndi mphunzi wa Masters mu Public Health wa Amref Internationsl University School Community Health (Kenya) ndi ngati mbali imodzi ya zofunikira za maphunzirowa.

Cholinga: Cholinga chakafukufuku ndi kuona zinthu zimene zimasokoneza kusakhulupilika pa kamwedwe ka ma ARV Kwa anyamata ndi atsikana omwe ali ndi kachirombo ka HIV pa kiliniki ino ya ARV.

Ndondomeko: Kutenga nawo mbali mukafukufukuyu ndi kodzipereka kotheratu (mwakufuna kwanu). Ngati mwavomera kutenga nawo mbali mukafukufuku, mudzafunika kuyankha mafunso ena okhudza inu ndi m'mene mumamwera ma ARVs. Kafukufuku akukhudza inu kuti mukumbukira m'mene mwakhalira mukumwera kapena kuiwala mapilisi anu pa mwezi wapitawu. Mapilisi amene mwabweretsa lero adzawerengedwanso kuti tiwone m'mene mukukhulupilikira kumwa mankhwalawa. Chisankho chofuna kutenga nawo mbali mukafukufuku ndi chochokera kwa inu mosaumilizidwa. Muli ndi ufulu osatenga nawo mbali kapena kuchoka pa zofunsidwa pa nthawi ina ili yonse.

Phindu: palibe phindu lowonekeratu kwa anthu koma ku mtundu wa anthu pamodzi ndi a za chisamaliro cha zaumoyo. Zotsatira za kafukufukuyu zitha kudzagwiritsidwa ntchito pothandiza ogwira ntchito pa kiliniki ya ma ARV ya ku pulogalamu ya teenclub madera ena amene ali ndi ma kiliniki a ma ARV ku Malawi kuti abweretsa njira zothandiza zimene zingalimbikitse a zaumoyo ndi kuthandiza kusintha kwa achinyamata pakamwedwe ka ma ARVs, kumene kudzachepetse chiwerengero cha imfa zimene zimachuluka kaamba kosamwa ma ARV moyenera mu dziko lino.

Chiopsyezo: Kutenga nawo mbali mukafukufuku sikukuikani pa chiopsyezo chirichonse cha moyo wanu.

Chinsinsi ndi kusaululula: Chinsinsi chanu ndi chotsimikizika. Zikalata zonse zamafunso zidzapatsidwa manambala ndi dzina la oyankha kapena kodi kuti akamuyendere woyankha sizidzagwiritsidwa ntchito pounika za m'mene kafukufuku wayendera ndi polemba malipoti. Uthenga wonse udzasungidwa mwachinsinsi mu failo yotetezedwa ndi mau achinsinsi ya magetsi ndipo okhala ndi mwayi otsegula failo yotetezedwayo adzakhala yekhayo amene akupangitsa kafukufukuyu basi.

Kuvomereza Kafufufuku: Kafukufukuyu ndiovemerezeka ndi Univesite ya Amref International University, Kenya komanso bungwe loona zokhudza kafukufuku kuMalawi kuno la National Health Science Research Committee (NHSRC). Ngati muli ndi mafunso ena oonjezera zokhudza ufulu wanu mu kafukufukuyu, chonde tumizani mafunso anu kwa Wapampando, NHSRC, P.O. Box 30377, Lilongwe 3, Malawi. Komanso mukhonza kulumikizana ndi Wankulu wa sukulu yoposera ukachenjede, Amref International University, P.O.BOX 27691-00506, Nairobi. Kenya.

Kuvomereza ndi kusaina: Kodi muli ndi funso lili lonse? (perekani mayankho pa mafunso amene afunsidwa) kodi mukuvomera kutenga nawo mbali mukafukufukuyu:

Malo opangila kafukufuku:

Kafukufukuyu akuchitikira zipatala zitatu: Area 25, Mtenthera ndi Baylor college of medicine

1.□ Inde *(sign consent and continue with questionnaire)* 2 □ Ayi *(Stop)*

Dzina la Woyankha: _____

Chisaini/ Chidindo: _____Tsiku: _____/_____/2025

Dzina la Wofufuza: _____

Chisaini: _____ Tsiku: _____/_____/2025

Dzina la Mboni: _____

(mboni alembe ngati otenga nawo mbali sadziwa kulemba)

Appendix 9: Structured questionnaire (English version)

AMREF INTERNATIONAL UNIVERSITY QUANTITATIVE DATA COLLECTION TOOL:

ASSOCIATION BETWEEN VIOLENCE AND ADHERENCE TO ANTIRETROVIRAL THERAPY: A CASE OF HIV INFECTED ADOLESCENTS IN LILONGWE, MALAWI

BACKGROUND INFORMATION

Questionnaire number…… Date of interview ……..……

Name of interviewer ……

SECTION ONE: SOCIO-DEMOGRAPHIC FACTORS

(Please circle all the responses given by respondents)

1. Sex of respondent
   - i. □ Male
   - ii. □ Female
2. Which religion do you belong to?
   - i. □ Catholic
   - ii. □ Pentecost
   - iii. □ Presbyterian
   - iv. □ Muslim
   - v. □ Others (specify)_____
3. What is your highest level of education?
   - i. □ Primary
   - ii. □ Secondary
   - iii. □ Tertiary
   - iv. □ None

4. Which of the following is applicable to you currently?

   i. □ Both mother and father are alive

   ii. □ Only Mother alive

   iii. □ Only Father alive

   iv. □ Both Mother and Father are not alive If the respondents' parents are both not alive, please skip the next question and proceed to Q6.

5. What is the marital status of your parents?

   i. □ Married

   ii. □ Never been married

   iii. □ Separated

   iv. □ Divorced

   v. □ Widowed

6. Who do you currently live with?

   i. □ Parents

   ii. □ Relatives

   iii. □ Alone

   iv. □ Siblings in a child-headed home

   v. □ Other (specify)

7. How old are you? *(Age of respondent in complete years)* _____

8. Have you ever disclosed your HIV status and that you are taking ART to anyone?

   i. □ Yes

   ii. □ No

SECTION TWO: GENDER-BASED VIOLENCE

Emotional Violence

Now, I am going to ask you questions about emotional violence. This means but is not limited to failure to provide a developmentally appropriate and supportive environment. Acts include patterns of belittling, ignoring, denigrating, scapegoating, and threatening.

9. Has anyone in the past year made you feel ignored, yelled at, or shouted at you or made to feel embarrassed, ashamed or bad about yourself?
   i. □ Yes
   ii. □ No
10. Has anyone in the past year made you feel afraid, unsafe or in danger?
   i. □ Yes
   ii. □ No
11. In the past year, have you ever had thoughts of harming yourself or killing oneself
   i. □ Yes
   ii. □ No
12. In the past month, did you at any point fail to take your ART medication due to disturbance by any form of emotional violence?
   i. □ Yes
   ii. □ No

Sexual Violence

Now, I am going to ask you questions about sexual violence and your experience on that violence. This means but is not limited to any sexual act perpetrated by anyone against your will, this includes a completed sex act (rape) without consent, any

attempted sex acts without consent, abusive sexual contact for example unwanted touching, as well as non-contact sexual abuse like unwanted looking or showing and online exploitation. Please feel free to answer these questions remember your name will not be added to any of your responses and everything you say will be confidential.

13. Has anyone ever made you watch a sex video or look at sexual pictures?
    i. □ Yes
    ii. □ No
14. Has anyone ever made you look at their private parts or wanted to look at yours?
    i. □ Yes
    ii. □ No
15. Has anyone ever given you sexual comments in any way that you did not want?
    i. □ Yes
    ii. □ No
16. Has anyone ever made you touch their private parts or touched yours?
    i. □ Yes
    ii. □ No
17. Has anyone ever forced you to have sexual intercourse or perform any sexual act?
    i. □ Yes
    ii. □ No
18. At what age did you have your first penetrative sexual intercourse with a partner of the opposite sex?

    _____ age in years

19. Have you ever failed to take your ART medication due to disturbance by any form of sexual violence?
    i. □ Yes
    ii. □ No

Physical Violence

Now, I am going to ask you questions about physical violence and your experience on that violence. This means but is not limited to violence that results in physical harm like beating, slapping, punching from a caregiver, teacher, peer, stranger, or anyone.

20. In the past year, has anyone ever punched, slapped, kicked, beaten, or caused to have any type of physical harm on purpose?
    i. □ Yes
    ii. □ No
21. In the past year, has anyone used a sharp object or any other weapon to cause bodily harm to you?
    i. □ Yes
    ii. □ No
22. In the past month, did you at any point fail to take your ART medication due to disturbance by any form of physical violence?
    i. □ Yes
    ii. □ No

SECTION THREE: WITNESSING VIOLENCE IN THE HOME

Now I will ask you about any violence that you may have experienced in the home. This may be any form of violence whether emotional, physical and sexual and I will need you to recall if you ever witnessed such violence happening and how the violence affected you. Even if you are not directly involved this is violence, it may have occurred or be perpetrated by your parent, sibling or other close relatives

23. Have you ever witnessed any form of violence in your home (this may be sexual, physical or emotional)
    i. □ Yes
    ii. □ No
24. What form of violence did you witness at home?
    i. □ Physical
    ii. □ Emotional
    iii. □ Sexual
25. Were you emotionally or physically affected by the violence that you witnessed happening in the home?
    i. □ Yes
    ii. □ No

SECTION THREE: HISTORY OF ART ADHERENCE

26. In the past seven days, did you fail to take your ART as prescribed for any reason?
    i. □ Yes
    ii. □ No

27. In the past month, did you fail to take your ART medication at the prescribed time for any reason?

    i. □ Yes

    ii. □ No

28. In the past six months, did you miss your clinic on appointment date for any reason?

    i. □ Yes

    ii. □ No

29. Do you know the importance of good adherence and the dangers of non-adherence?

    i. □ Yes

    ii. □ No

SELF REPORT

30. Did you take your antiretroviral drugs today?

    i. □ Yes

    ii. □ No

31. Over the last seven days or one week, how many times have you missed your ART dosages? ……..……..

32. Over the past month, how many times have you missed taking a dose of your drugs? …….……

33. Calculating the reported adherence percentage *(Use a calculator and formula below) the numerator is obtained from subtracting the number of pills supposed to be taken from the number missed as recorded in question 32. For a patient taking 30 pills in one months it will be 30 minus number of missed pills over one month*

$$\left(\frac{number\ of\ \ pills\ taken}{number\ of\ pills\ expected\ to\ be\ taken\ by\ patient} * 100\%\right)$$

…….%.

OBSERVATION (check medical records; health passport or Mastercard)

34. Clients viral load

    i. □ < 1000

    ii. □ ≥1000

35. Missed appointment in the past 6 months

    i. □ Yes

    ii. □ No

Thank you for your participation in this study.

Appendix 10: Structured questionnaire (Chichewa version)

AMREF INTERNATIONAL UNIVERSITY QUANTITATIVE DATA COLLECTION TOOL:

ASSOCIATION BETWEEN VIOLENCE AND ADHERENCE TO ANTIRETROVIRAL THERAPY: A CASE OF HIV INFECTED ADOLESCENTS IN LILONGWE, MALAWI

UTHENGA WOKHUDZA MAZIKO KAPENA CHIYAMBI

Nambala ya chikalata cha mafunso……

Tsiku lofunsana mafunso ……

Dzina la wofunsa mafunso ……

GAWO LOYAMBA: ZOKHUDZA CHIKHALIDWE NDI CHIWERENGERO CHA ANTHU

(Chonde zunguzani mayankho operekedwa ndi oyankha mafunso -Please circle all the responses given by respondents)

36. Chimene oyankha ali- mkazi kapena mwamuna

iii. □ Mwamuna

iv. □ Mkazi

37. Kodi ndinu a mpingo uti?

vi. □ Katolika

vii. □ Pentecosto

viii. □ CCAP (Presbyterian)

ix. □ Chisilamu

x. □ Zina (tchulani)_____

38. Kodi sukulu munafika nayo pati?

v. □ Pulaimale

vi. □ Sekondale

vii. □ Kupitiliza ndi maphunziro apamwamba

viii. □ Osaphunzira

39. Mwa zinthu zotsatirazi ndi chiti chimene chili chogwirizana ndi chimene inu muli pakali pano?

v. □ Makolo onse awiri mayi ndi bambo ali moyo

vi. □ Mayi okha ali moyo

vii. □ Bambo okha ali moyo

viii. □ Makolo onse sali moyo (If the respondents' parents are both not alive, please skip the next question and proceed to Q6.)

40. Kodi pa nkhani yokhudza banja zili bwanji ndi makolo anu?

vi. □ Ali pa banja

vii. □ Sanakwatiwepo

viii. □ Wokhala mosiyana

ix. □ Wosudzulidwa

x. □ Woferedwa/Wamasiye

41. Kodi mukukhala ndi ndani?

vi. □ Makolo

vii. □ Achibale

viii. □ Ndekha

ix. □ M'bale wanga m'nyumba mokhala ana okhaokha

x. □ Zina (tchulani)

7. Kodi muli ndi zaka zingati? *(Age of respondent in complete years)*

_____

8. Kodi munayamba mwaulula za m’mene inu mulili pa nkhani ya HIV ndinso kuti mumamwa ma ARV kwa wina wake?

iii. □ Inde

iv. □ Ayi

GAWO LACHIWIRI: NKHANZA ZOKHUDZA AMAYI KAPENA ABAMBO

Nkhanza zokhudza m’maganizo

Tsopano, ndikufunsani mafunso okhudza nkhanza zokhudza m’maganizo. Izi zikutanthauza koma sizikupereka malire opereka malo oyenera komanso othandizira. Zochita zimaphatikizaponso kunyoza, njira zochepetsera kunyoza, zozimbaitsira ndi kuopsyeza.

9. Kodi alipo wina mu chaka chathachi amene anakupangitsani inu kumva kusalabadilidwa, kukuwidwa, kapena kukalipilidwa kapena kumva kuchititsidwa manyazi, kuchita manyazi kapena kumva zoipa zokhudza umwini?

iii. □ Inde

iv. □ Ayi

10. Kodi alipo wina mu chaka chathachi amene anakupangitsani kukhala amantha, wosatetezeka kapena okhala pa chiopsyezo?

iii. □ Inde

iv. □ Ayi

11. Mu chaka chathachi, kodi munakhalapo ndi maganizo wodzivulaza nokha kapena kudzipha nokha?

iii. □ Inde

iv. □ Ayi

12. M’mwezi wathawu, kodi munalepherapo kumwa ma ARV anu chifukwa cha kusokonezeka ndi mtundu wina uliwonse wa nkhanza za m’maganizo?

iii. □ Inde

iv. □ Ayi

Nkhanza zokhudza kugonana

Tsopano, ndikufunsani mafunso okhudza nkhanza zokhudza kugonana komanso zomwe munakumanako nazo zokhudza nkhanza zogonanazi. Izi zikutanthauza koma sizikupereka malire ku nkhaza yoti wine wakuchitirani kumbali yogonana mopanda chilolezo kapena kufuna kwanu, apa ndikutanthauza zinthu monga kugwiliridwa, kapena kufuna kukugwililirani koma sanathe kutero, kukugwirani pathupi panu mosayenera, kukuyanganana mwachikoka kapena mofuna kukukopani mwadama, kapena kukuonesani ma filimu olaula ovula kapena ochita zogonana. Ndikukulimbikitsani kuti zokambilanazi ndi zachinsinsi ndipo dzina lanu silizaperekedwa pazoyankha zanu.

13. Kodi alipo amene anakupangitsani kuwonera filimu yokhudza kugonana kapena kuwona zithunzi zokhudza kugonana?

iii. □ Inde

iv. □ Ayi

14. Kodi alipo amene anakupangitsani kuwona maliseche awo kapena kufuna kuwona anu?

iii. □ Inde

iv. □ Ayi

15. Kodi alipo amene anapereka ndemanga yokhudza nkhani yogonana mwa njira ina imene inu simunafuna?

iii. □ Inde

iv. □ Ayi

16. Kodi alipo amene anakupangitsani inu kukhudza maliseche ake kapena iye kukhudza anu?

iii. □ Inde

iv. □ Ayi

17. Kodi alipo amene anakukakamizani kugonana naye kapena kuchita machitachita ena aliwonse wogonana?

iii. □ Inde

iv. □ Ayi

18. Kodi munayamba kugonana ndi mwamuna kapena mkazi muli ndi zaka zingati?

_____

19. Kodi munayamba mwalepherapo kumwa ma ARV anu chifukwa cha kusokonezeka ndi mtundu wina uliwonse was nkhanza zokhudza kugonana?

iii. □ Inde

iv. □ Ayi

Nkhanza zokhudza thupi

Tsopano, ndikufunsani mafunso okhudza nkhanza zokhudza kupwetekedwa muthupi. Izi zikutanthauza koma sizikupereka malire ku nkhaza yopwetekedwa mthupi ngati kumenyedwa, kuwazidwa mbama, kutsinidwa ndi mbale wanu okusungani, nzanu olo munthu osamudziwa kapenanso wina aliyense.

20. Mu chaka chathachi, kodi alipo amene anakumenyani ndi faiti, kukumenyani mbama, kukukankhani, kumenyedwa, kapena kupangitsa kukhala ndi mtundu uliwonse wokhudza kukuvulazani mthupi mwadala?

iii. □ Inde

iv. □ Ayi

21. Mu chaka chathachi, kodi alipo amene anagwiritsa chida chosongoka kapena chida chobweretsa kuvulala kokhudza thupi kwa inu?

iii. □ Inde

iv. □ Ayi

22.Mu mwezi wathawu, Kodi munayamba mwalepherapo kumwa ma ARV anu chifukwa cha kusokonezeka ndi mtundu wina uliwonse wa nkhanza zokhudza thupi?

iii. □ Inde

iv. □ Ayi

SECTION THREE: KUONELERA NKHANZA ZOCHITIKA KUNYUMBA

Tsopano, ndikufunsani mafunso okhudza nkhanza zomwe mwaonako kwanu. Izi zikukhudza nkhanza ziri zonse monga zammaganizo, nkhaza zovulazana pathupi komanso nkhaza zokhudza kugonana. Ndikufuna mukumbukireko nkhaza zomwe munaonako zochitika. Ngakhale inuyo musakukhudzidwa ndi nkhazazi. Nkhanzazi zitha kukhala zochitikira olo zochitidwa ndi anthu ena kaya abale anu kaya makolo anu kaya anthu ongoyandikana nawo.

23. Kodi munaonako nkhaza ziri zones zikuchikika kwanu? (izi zikhonza kukhala nkhanza monga zogwililidwa, kumenyana kapena kunyozana olo kutukwanizana)

iii. □ Inde

iv. □ Ayi

24. Ndi nkhanza ziti zomwe munaonako zikuchitikira ena kunu?

iv. □ Nkhanza zapathupi (Kumenyana olo kuvulazana)

v. □ Nkhanza za mmalingaliro monga kunyozana kutukwanana

vi. □ Nkhaza zogonana (monga kugwiliridwa)

25. Munadandaulako kapena kupwetekedwa nawo nthupi mwanu chifukwa cha nkhanza yomwe munaonelerapo kwanu?

i. □ Inde

ii. □ Ayi

GAWO LACHITATU: MBIRI YOLONDOLOZA KAMWEDWE KA MANKHWALA A ARV

26. Mu Masiku 7 apitawo, kodi munalepherapo kumwa ma ARV anu monga analembedwera pa chifukwa china chili chonse?

i. □ Inde

ii. □ Ayi

27. Mu mwezi wathawu, kodi munalepherapo kumwa ma ARV anu pa nthawi imene munauzidwa pa chifukwa china chili chonse?

i. □ Inde

ii. □ Ayi

28.Mu miyezi 6 yapitayo, kodi munaiwalapo kubwere ku kiliniki pa tsiku lanu loikika pa chifukwa china chili chonse?

i. □ Inde

ii. □ Ayi

29. Kodi mumadziwa kufunikira kwa kulondoloza bwino mankhwala ndi zoopsya za kusalondoloza?

i. □ Inde

ii. □ Ayi

LIPOTI LA UMWINI

30. Kodi munamwa ma ARV anu lero?

i. □ Inde

ii. □ Ayi

31. Pa Masiku 7 apitawo kapena mulungu umodzi, ndi maulendo angati amene munaiwala kumwa mankhwala a ma ARV anu? ……..……..

32. Kuwerengera za kulondoloza mankhwala kwa Masiku 7 *(Use a calculator and formula below)*…….%.

$$\left(\frac{number\ of\ \ pills\ taken}{number\ of\ pills\ expected\ to\ be\ taken\ by\ patient} * 100\%\right)$$

33. Mu mwezi wathawu, ndi maulendo angati amene munaiwala kumwa mlingo wa mankhwala anu? …….……

34. Lipoti la kuchuluka kwa kulondoloza mankhwala *(Use a calculator and formula below)*

$$\left(\frac{number\ of\ \ pills\ taken}{number\ of\ pills\ expected\ to\ be\ taken\ by\ patient} * 100\%\right)$$

…….%.

ZOYANGANA (Ocheck medical records; health passport or mastercard)

35. Clients viral load

i. □ < 1000

ii. □ ≥1000

36. Missed appointment in the past 6 months

iii. □ Yes

iv. □ No

Zikomo chifukwa chotenga nawo mbali mukafukufukuyu.

Appendix 11: Focus Group Discussion Guide (English version)

AMREF INTERNATIONAL UNIVERSITY QUALITATIVE DATA COLLECTION TOOL:

ASSOCIATION BETWEEN VIOLENCE AND ADHERENCE TO ANTIRETROVIRAL THERAPY: A CASE OF HIV INFECTED ADOLESCENTS IN LILONGWE, MALAWI

(Information to be given to FGD discussants)

You are asked to participate in this study; the study is being conducted by a master's in public health student of Amref International University, School of Community Health, Kenya and as part of the course requirement.

Purpose: The purpose of the study is to assess the association between violence and adherence to antiretroviral therapy among HIV-infected adolescents in Lilongwe, Malawi. Your participation in this study is voluntary, and you may choose to participate or not participate. The information gathered from this study is confidential and meant be used for the study and intervention purposes only.

- Participants are adolescents living with HIV attending in teen club (10-19) currently on ART, to whom a structured questionnaire has not been administered.
- One moderator (Virginia)
- One on-site notes taker (and use of tape recorder)
- Greetings to build rapport.
- Seeking consent to tape record the conversation.

1. What do you understand by Violence or maltreatment?
2. What are the different forms of violence that you know of?
3. Do you think adolescents living with HIV would ever be affected by violence? Give examples of violences you have heard of.

4. In your opinion, who would be the main perpetrators of violence among ALWHIV in your opinion?

5. What do you understand by Adherence to ART?

6. What are the benefits of taking ART that you know of?

7. What would you say about any association between violence and adherence to ART?

8. Does this clinic ever assess for violence among ALWHIV reporting for ART at this clinic?

9. Do you know any reporting structures for violence?

10. Would most ALWHIV ever report if they had emotional, Physical, and/ or sexual violence?

11. What do you think should be done to protect ALWHIV from violence?

12. What do you think should be done to help ALWHIV to adhere more easily to their antiretroviral therapy?

Appendix 12: Key Informant Interview Guide (English version)

AMREF INTERNATIONAL UNIVERSITY QUALITATIVE DATA COLLECTION TOOL: KEY INFORMANT-ART CLINICIAN /NURSE

(Information to be given to respondent)

My name is Virginia Thonyiwa. I am an Amref International University student conducting this study with the aim of determining the association between violence and adherence to ART adherence among adolescent HIV patients at this clinic. The information gathered from this study is confidential and only to be used for the study and intervention purposes only.

1. Which services are being offered at this clinic to ALWHA?
2. Which activities are done at this facility to ensure adolescents attain good adherence?
3. Are there some ALWHIV that face ART adherence problems?
4. What do you understand by Violence or maltreatment?
5. What are the different forms of violence that you know of?
6. Do you think adolescents living with HIV would ever be affected by violence?
7. Who would the main perpetrators of violence among ALWHIV be, in your opinion?
8. What do you understand by Adherence to ART?
9. What are the benefits of taking ART that you know of?
10. What would you say about the association between violence and adherence to ART?
11. Does this clinic ever assess for violence among ALWHIV at this clinic?
12. Do you know any reporting structures for violence?

13. Would most ALWHIV ever report if they had emotional, physical and/ or sexual violence?

14. What do you think should be done to protect ALWHIV from violence?

15. What do you think should be done to help ALWHIV to adhere more easily to their antiretroviral therapy?

Appendix 13: Picture of Mtenthere Health Centre

Appendix 14: Picture of Baylor College of Medicine

Appendix 15: Amref University Approval

AMREF INTERNATIONAL UNIVERSITY

GRADUATE SCHOOL

Email: amiu.deangraduatestudies@amref.ac.ke

P.O Box 27691-00506
Nairobi, Kenya
Tel. 0206993236

Website: https://amref.ac.ke/

FROM: Dean, Graduate School

DATE: 5th February 2025

TO: Virginia Thonyiwa

REF: AMIU/ARP/3845-1

RE: APPROVAL OF RESEARCH PROPOSAL

Following your full proposal presentation on 29th July 2023, and subsequent review of your revised proposal, Graduate School Board has approved your research work entitled, "***Association Between Violence and Adherence to Antiretroviral Therapy: A Case Of HIV Infected Adolescents in Lilongwe, Malawi.***"

You may now proceed with data collection subject to clearance with the Institutional Research Board (IRB) from your country. Please note that ethical approval is a mandatory requirement for all research process.

Additionally, you are required to update Graduate School of your progress after every three months by submitting progress reports using the forms attached.

Sincerely,

Dr. Dancan Irungu
Dean, Graduate School & Director Health Entrepreneurship
CC: Supervisors & HOD

Appendix 16: Letter of support; Lilongwe DHO

Ref. No.:
Telephone No.: 265 727017
Telefax No.: 265 727817
Telex No.:
E-Mail. lilongwedho@malawi.net

Please address all communications to:
The District Health Officer

Lilongwe District Health Office
P.O. Box 1274
Lilongwe
Malawi

5th February, 2025

National Health Sciences Research Committee
Ministry of health
P.O Box 30377,
Lilongwe 3

Dear Research Committee Members,

LETTER OF SUPPORT FOR VIRGINIA THONYIWA, MPH STUDENT TO CARRY OUT A STUDY UNDER LILONGWE DISTRICT HEALTH OFFICE

This is to confirm that Virginia Thonyiwa, a Master's in Public Health student with Amref International University and under a Malawian Supervisor Professor Victor Mwapasa, has sought permission to conduct a study titled: ***"Association between violence and adherence to antiretroviral therapy: A case of HIV-infected adolescents in Lilongwe, Malawi.***

The study is intended to be carried out in facilities under Lilongwe District Health Office namely Baylor, Area 25 and Mtenthera health facilities.

Please render her the necessary support required.

Sincerely Yours,

MINISTRY OF HEALTH LILONGWE DISTRICT HEALTH OFFICE
05 FEB 2025
DIRECTOR OF HEALTH & SOCIAL SERVICES (DHSS)
P. BAG & BOX 1274 LILONGWE

Dr Wilson Chingani
DIRECTOR OF HEALTH SERVICES, LILONGWE DISTRICT COUNCIL

Appendix 17: IRB APPROVAL- NHSRC- Malawi

Telephone: a + 265 789 400
Facsimile: + 265 789 431

All Communications should be addressed to:

The Secretary for Health

In reply please quote No. MED 4/36c
MINISTRY OF HEALTH
P.O. BOX 30377
LILONGWE 3
MALAWI

24th March, 2025

Virginia Thonyiwa
AMREF

Dear Sir/Madam

Protocol# 25/03/4599: Association between Violence and Adherence to Antiretroviral Therapy: A Case of HIV Infected Adolescents in Lilongwe, Malawi

Thank you for the above titled proposal that you submitted to the National Health Sciences Research Committee (NHSRC) for review. Please be advised that the NHSRC has **reviewed** and **approved** the above titled study.

- **APPROVAL NUMBER : 4599**
- The above details should be used on all correspondences, consent forms and documents as appropriate.
- **APPROVAL DATE : 24/03/2025**
- **EXPIRATION DATE : 23/03/2026**
  This approval expires on **23/03/2026**. After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the NHSRC Secretariat should be submitted one month before the expiration date for continuing review.
- **SERIOUS ADVERSE EVENT REPORTING:** All serious problems having to do with subject safety must be reported to the NHSRC within 10 working days using standard forms obtainable from the NHSRC Secretariat.
- **MODIFICATIONS**: Prior NHSRC approval using forms obtainable from the NHSRC Secretariat is required before implementing any changes in the protocol (including changes in the consent documents). You may not use any other consent documents besides those approved by the NHSRC.
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the NHSRC using standard forms obtainable from the NHSRC Secretariat.
- **QUESTIONS**: Please contact the NHSRC on phone number *+265 0999936937* or by email on mohdoccentre@gmail.com.
- **OTHER**: Please be reminded to send in copies of your final research results for our records (Health Research Database).

Kind regards from the NHSRC Secretariat.

.....

For: CHAIRPERSON, NATIONAL HEALTH SCIENCES RESEARCH COMMITTEE
Promoting Ethical Conduct of Research[1]

Executive Committee: *Dr. M. Joshua (Chairperson), Dr. F. Sinyiza (Vice-Chairperson)*
Registered with the USA Office for Human Research Protections (OHRP) as an International IRBIRB Number IRB00003905 FWA00005976

Appendix 18: Certificate of Ethics Approval_Malawi NHSC

UNITY AND FREEDOM

CERTIFICATE OF ETHICS APPROVAL

This is to certify that the National Health Science Research Committee has reviewed and approved the study titled:

Study Title: **Protocol# 25/03/4599: Association between Violence and Adherence to Antiretroviral Therapy: A Case of HIV Infected Adolescents in Lilongwe, Malawi**

Investigator: Virginia Thonyiwa

Start Date 24/03/2025 End Date:23/03/2026

Date of issue: 24/03/2025

Dr. Martias Joshua
Chairperson-NHSRC

National Health Sciences Research Committee
24 MAR 2025
APPROVED

Mrs. Chikondi Chimbatata
NHSRC -Administrator

Appendix 19:Plagiarism Similarity Report

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Appendix 20: Map of Malawi