A REALIST EVALUATION OF INTERVENTIONS TO IMPROVE ANTIRETROVIRAL THERAPY ADHERENCE AMONG HIV POSITIVE ADOLESCENTS AT MUKONO GENERAL HOSPITAL

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ABSTRACT

The purpose of this study was to evaluate interventions for improving ART Adherence at Mukono General Hospital. This study was premised on the Social Action Model Theory (SAT) by Talcott Parsons in 1937 that assets that individual's actions and beliefs are influenced by the interacting with others through cultural, social and environmental norms while the Health Behavioral Model (HBM) by Hochbaum, Rosenstock and Kegels in 1950's says that an individual's actions and behavior are influenced by their actions, beliefs perception as well as external factors.

The study had three objectives: to explore the factors for access and use of ART services among HIV positive adolescents, to examine the mechanisms aimed at improving ART adherence at Mukono General Hospital, to assess the outcomes of the mechanisms aimed at improving ART Adherence among HIV Positive adolescents at Mukono General Hospital. The study was based on Realist Evaluations that are used to understand what interventions work, for whom, how, and why they work.

The study adopted a case study design by employing qualitative data from 26 respondents. Interview guides were used as measures of data collection through semi-structured guides, focus group discussions as well and key informant guides. The study involved primary and secondary data as the sources of information.

The general outcome of the study indicated that the general conclusion was that socioeconomic, mobile health services, technological, psychosocial support from health workers, counsellors, peer support groups, and family support groups are the interventions that are used to improve ART Adherence at Mukono General Hospital. This was established through the outcomes established in the study by adopting the positive outcomes. Based on the findings and conclusions of the study, the study recommended that management at Mukono General Hospital should improve support for mobile health services through hospital managers, local authorities as well as offering more support to peer support groups through empowerment and engagement. Management at Mukono General Hospital should develop policies that can be further used to improve ART adherence through working closely with the Ministry of Health and Partner Groups to improve ART adherence among HIV positive Adolescents.

DECLARATION

I, Innocent Kabagenyi, hereby affirm that I am the sole author of this dissertation and that I have duly acknowledged and disclosed any assistance I may have received in its preparation. I have appropriately referenced sources from which I have obtained information, ideas, or statements, either in their original form or through paraphrasing. I affirm that I authored this dissertation and submitted it in fulfillment of the requirements for the master's degree in Development Monitoring and Evaluation at Uganda Christian University Mukono.

INNOCENT KABAGENYI

RS21M66/013

Signature……  ……Date…25th /05/2026

DEDICATION

This dissertation is dedicated to my family, specifically my father, siblings, husband, and children. Their love, encouragement, and moral support have strengthened me to carry on with this academic journey. To my Supervisor, Mr. Solomon Mwije, thank you for the infinite support.

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I extend my heartfelt gratitude and appreciation to my research supervisor, Mr. Mwije Solomon. Your unending guidance and support have been very pivotal in my thesis. Without your professional input and motivation, this research would not have been successful.

I acknowledge the contribution and cooperation of the respondents from Mukono General Hospital, who willingly provided all the necessary information during my data collection. Without their support, this study would have been impossible to finish.

Lastly, I would like to express my appreciation to my father, husband, siblings, children, and friends for their support throughout the research process.

APPROVAL

I declare that this research report on 'Evaluating Interventions for improving ART Adherence at Mukono General Hospital: A realist evaluation has been submitted for examination with my approval as the institute supervisor.

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GLOSSARY TERMS AND ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ART	Antiretroviral Therapy
ARVs	Antiretroviral
CMOs	Context Mechanism Outcome
EMR	Electronic Medical Records
FGD	Focused Group Discussion
HBM	Health Behavioral Model
HIV	Human Immune Virus
ICT	Information Technology
MGH	Mukono General Hospital
MOH	Ministry of Health
MRTS	Middle Range Theories
MUWRP	Makerere University Water Reed Project
NGO	Non-Government Organization
PLHIV	Persons Living with HIV
PREP	Pre-Exposure Prophylaxis
REC	Research Evaluation Committee
SAT	Social Action Theory
SMC	Safe Male Circumcision
TB	Tuberculosis
UAC	Uganda Aids Commission
UCU	Uganda Christian University
UNAIDS	United Nations Joint Program on HIV/AIDS
VHTS	Village Health Teams

CHAPTER ONE: INTRODUCTION

1.0 Introduction

Global evidence shows that consistent adherence to Antiretroviral therapy (ART) may can lead to viral suppression, which significantly reduces the HIV viral load in someone's body (Bukenya et al., 2019) It has been widely noted that inadequate adherence to ART may lead to the development of drug-resistant strains of HIV while ensuring strict adherence to the prescribed medication regimen may help prevent the emergence of drug resistance, preserving the effectiveness of available antiretroviral drugs for the long term. (Jolping at al ., 2020)

Also, it has been vital for all patients (including adolescents) on ART to adhere to their medication schedule to achieve better immune system health, reducing their susceptibility to opportunistic infections and AIDS-related complications. Still, the situation at Mukono General Hospital remains unknown in this regard, prompting further inquiry because we want to understand whether the interventions for improving ART adherence work for and under what circumstances they work in that particular context, because some interventions may work in other places but may certainly not work at Mukono General Hospital. Understanding the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital also remains a perpetual endeavor that serves the interests of many stakeholders involved in HIV management countrywide.

1.1 Background to the Study

The background to the study is presented in four levels, namely: historical, theoretical, conceptual, and contextual perspectives, as described below:

1.1.1 Historical background

Since the beginning of the pandemic, approximately 84.2 million people worldwide have contracted HIV. It is estimated that there are currently 348.4 million people living with HIV globally. In the same period, there were 1.5 million new infections and approximately 650,000 deaths from AIDS-related illnesses. (Deng, Chen & Si,, 2023) The sub-Saharan Africa region has the highest HIV rates in the world, with around 3.4% of adults (1 in 25) living with HIV. (Maulide-Cane et al., 2023)This region accounts for more than two-thirds of all HIV/AIDS cases. Among those affected, women and girls are the most impacted, accounting for 59% of all new infections. According to (Halli & Birada, 2021), approximately 4,500 adolescent girls and women aged 15-24 were contracting HIV every week in 2019. HIV/AIDS is the second

leading cause of death among adolescents worldwide and the primary cause of death in sub-Saharan Africa. (Bell and Perry, 2020)

Numerous international stakeholders are pooling their efforts to realize the ambitious objective encapsulated within the United Nations Sustainable Development Goal 3.3 (SDG 3.3), which aims to eradicate the global AIDS epidemic as a public health crisis by the year 2030. This initiative aligns with the targeted benchmarks outlined in the UNAIDS 95-95-95 fast track strategy, striving for 95% of individuals living with HIV to be aware of their status, 95% of those diagnosed to receive sustained antiretroviral therapy (ART), and 95% of those on treatment to achieve viral suppression by 2030 (UNAIDS, 2022). Across the East African region, Uganda among them, commendable progress has been made in erecting barriers against HIV transmission and bolstering mechanisms for epidemic management. (Cilliers, 2021) Despite these strides, HIV/AIDS remains a formidable challenge within Uganda's borders, persistently afflicting a substantial populace, including a concerning number of adolescents who continue to contract the virus and face the devastating consequences of the disease. (Kizito et al , 2023)

Despite the availability of antiretroviral therapy (ART) in combating HIV/AIDS, adherence among adolescents remains suboptimal, with a staggering 70% exhibiting high rates of non-adherence. (Hugho et al, 2023)This deficiency in adherence contributes significantly to the persistence of HIV-related morbidity and mortality, particularly in less developed regions such as sub-Saharan Africa, where monitoring of viral load is less frequent compared to developed countries. As underscored by Soudebto (2024), this discrepancy exacerbates the prevalence of HIV-related deaths in these areas. HIV/AIDS profoundly impacts adolescents, posing threats to their mental, physical, and overall well-being, often culminating in premature mortality. Hence, stringent adherence to ART is imperative, especially among this vulnerable demographic.

Barriers to adherence manifest at multiple levels, encompassing patient-related challenges, healthcare system constraints, and healthcare provider factors (Kizito et al , 2023) However, research suggests that a multifaceted approach involving a combination of interventions yields superior efficacy in enhancing adherence compared to individual strategies. Consequently, concerted efforts are indispensable to address the multifaceted challenges hindering ART adherence among adolescents. (Quinn and Voisin, 2020)By implementing comprehensive interventions targeting various barriers, such as stigma, access to healthcare, medication side

effects, and psychosocial support, stakeholders can effectively bolster adherence rates. Such endeavors are pivotal in mitigating the adverse impact of HIV/AIDS, safeguarding the health and well-being of adolescents, and ultimately curtailing the spread of the virus. (Okonji et al , 2020)

1.1.2 Contextual background

The fight against HIV/AIDS hinges on effective ART adherence among adolescents. This remains a critical demographic challenge in achieving the 95-95-95 targets by 2030 as set by the World Health Organization. This calls for 95% of people to know their HIV status, 95% of those diagnosed to receiving antiretroviral therapy, and 95% on treatment having undetected loads (Musanje et al, 2023). Poor adherence therefore hinders the set target leading to less due to the fewer adolescents taking their required prescriptions. Mukono General Hospital serves up to 318 adolescents registered ART patients in the past five (5) years. However, ART adherence among adolescents' averages 81% is below the 95-95-95 targets. Despite concerted efforts, challenges persist, as evidenced by the 78% to 83% values for ART adherence among adolescents since 2020. (Mukono General Hospital HMIS reports,2020-2023) Statistical data from Uganda reveal alarming trends in ART adherence among adolescents, especially in the peri-urban setting where Mukono General Hospital lies. Research indicates that approximately $^{1}/_{5}$ of ART patients discontinue ART within a year or face turbulence, with adolescents exhibiting the highest dropout rates at 32%. (Mutumba et al, 2022). Moreover, recent statistics underscore the disproportionate burden of new HIV infections among adolescents and young women, accounting for a staggering 70% of new cases. (Kizito et al , 2023). This not only highlights the vulnerability of adolescents to HIV/AIDS but also emphasizes the urgent need for targeted interventions to improve ART adherence and curb transmission rates.

Several factors contribute to the challenges adolescents face in accessing and adhering to ART (Kiwanuka et al, 2020). Socioeconomic factors such as poverty and limited access to healthcare services play a significant role, hindering adolescents' ability to afford medication and attend clinic appointments regularly. Moreover, the stigma associated with HIV/AIDS, particularly prevalent among adolescents, poses additional barriers, leading to fear of disclosure and reluctance to seek treatment. (Bukenya et al., 2019). Mukono General Hospital, together with its partners, has implemented multifaceted interventions that target various examine the access to ART and adherence including though not limited to; psychosocial support programs, peer-led initiatives, and community-based interventions to address stigma, improving medication adherence, and fostering a conducive environment for adolescents on ART remains an area to

explore further (Kamau et al, 2024) . While innovations such as long-acting injectable medications and technology-driven solutions like SMS reminders and telemedicine have offered opportunities to enhance adherence and overcome logistical barriers to accessing healthcare services, ART adherence among adolescents is still a subject for further debate. (Mutumba et al, 2022)

Despite these efforts, a significant gap exists in understanding the effectiveness of these interventions within specific contexts, such as Mukono General Hospital. Further research is needed to elucidate the contextual factors influencing ART adherence among adolescents in Mukono, identify tailored strategies to address these challenges, and ultimately identify the examine the access and use of ART services, the mechanisms aimed at improving ART adherence, and their respective outcomes. It is, therefore, upon this background that the researcher seeks to evaluate the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital.

1.1.3 Conceptual Background

ART Adherence refers to the extent to which individuals with HIV/AIDS follow their prescribed ART regimen consistently and accurately (Ajuna et al, 2021). The effectiveness of ART in suppressing HIV replication, limiting the development of drug resistance, boosting immunological function, and eventually lowering morbidity and mortality associated with HIV/Aids is dependent on an individual's ability to adhere to their treatment regimens. The practice of taking drugs exactly as directed, at the appropriate dosage, and at the times that have been specified is often associated with high levels of adherence (Reif et al., 2020). Because of this, it is necessary to strictly adhere to a daily drug schedule with manifestations of skipping dosages or manner inconsistently taking might result in the failure of treatment and could potentially jeopardize the success of therapy as is consistent with (Campbell et al., 2020).

HIV Positive adolescents refer to individuals between the ages of 13 and 19 who have been diagnosed with HIV, the virus that causes AIDS (Muwanguzi et al., 2021). The adolescence stage is a very critical one as it is often marked by physical, psychological as well as social changes. Several adolescents usually engage in risky behaviors such as smoking, and prostitution due to peer pressure from their fellow adolescents that may expose them to getting infected with HIV, or those that are already infected may fail to have proper ART Adherence. When an adolescent is HIV Positive, it adds unique challenges to their development and health management (Mbalinda et al., 2020). HIV Positive adolescents require specialized care and

support that acknowledges their developmental stage, addresses their specific needs, and empowers them to manage their health effectively. This involves comprehensive healthcare services, education, counseling, peer support, and the involvement of caregivers or guardians in their care (Ssewamala et al., 2020).

ART Government adherence guidelines

- The ART government consolidated guidelines for the prevention and treatment of HIV and AIDS in Uganda were established in 2022. Over the years, they have been updated based on research on HIV prevention and treatment. The recently updated guidelines were formed in November 2022 for both government and private institutions as follows:
- HIV Testing services to prioritize case-finding approaches of individual candidates by a trained health worker to determine whether they are HIV Positive or negative. In this case, the age of consent starts from 15 years and above. The target population includes adolescent girls, youths, and women. This also includes HIV self-tests or HIVST, which is now in use.
- HIV prevention through ABC that is Abstinence, Safe Male Circumcision (SMC), PEP, PrEP) Pre-Exposure Prophylaxes for HIV Prevention. This includes the use of Dapivirine vaginal ring, Injectable Cabtegravir (LA-CAB), especially for people at substantial risk of HIV infection as part of the prevention approaches.
- Care and support for Persons Living with HIV that includes TB screening and diagnosis. These should be screened for TB disease at each visit to the health facility.
- Initiating ART among Persons Living with HIV with TB treatment. This should be started at two weeks of initiating TB treatment irrespective of one's CD4 cell count, among people living with HIV except when signs and symptoms of meningitis are present.
- Care and support for persons living with HIV through the management of ART daily tablets depending on one's age. Tertiary HIV management, Aging with HIV integration of Non-Communicable Diseases in HIV Management. This includes consolidating and scaling up efforts on HIV drug resistance, AHD, Cacx management, Hypertension and DM management integration in HIV Management, and Mental health management Integration in HIV care. Recommended first-line ARV regimens in children, adolescents, adults, and pregnant or breastfeeding women.

ART for persons living with HIV through monitoring response to ART-VL done six months after ART initiation and thereafter when established on ART. This involves 1 year for adults, six months for children and adolescents between the age of 0-19 years as well as 3months for

breastfeeding mothers. In case more than one drug is susceptible then refer to alternative drug. However, in as much as the guidelines for ART prevention and care are in existence at both the Government and the government facilities (Supply side), there are also expectations on the Persons Living with HIV (demand side) that include having a balanced nutritional diet, physical exercise to prevent non-communicable diseases such as Hypertension, stroke among others, PLWHIV should as well have a strong solid social support such as family and friends to provide counseling and guidance to manage stress. These are, however, not in control of ART on the facilities because the PLWHIV may choose not to adhere to them hence limiting the levels of adherence among them.

1.2 Problem Statement

In Uganda, Achieving the UNAIDS 95-95-95 targets depends on sustained antiretroviral therapy (ART) adherence among adolescents living with HIV (Namankere et al., 2022). Tailored strategies are essential to ensure that 95% of adolescents diagnosed with HIV remain on treatment and achieve viral suppression (Lee et al., 2021). However, adolescents continue to record the highest ART discontinuation rates, with one in five patients stopping treatment within the first year. Adolescents and young women also account for approximately 70% of new HIV infections in Uganda. These patterns threaten progress toward ending HIV/AIDS by 2030 and increase pressure on a health system where only 14% of HIV funding is government-sourced (Uganda AIDS Commission, 2023). In response, Mukono General Hospital has implemented several interventions — including teen clubs, psychosocial support, long-acting injectable ART, and social media-based reminder programs. Yet, hospital HMIS data from 2020–2024 show that adolescent ART adherence remains between 78% and 83%, well below the 95% target. Although these interventions are in use, it remains unclear which specific approaches or strategies contribute most to improved ART adherence among adolescents, under what circumstances they work, and why. There is evidence of existing reports that document activities and coverage, but not the mechanisms and contextual factors that trigger adherence. Without this evidence, efforts to scale or refine interventions risk being misdirected. This study therefore applies a realist evaluation to identify which ART adherence strategies work for adolescents at Mukono General Hospital, for whom, in what contexts, and through what mechanisms, in order to inform more targeted and effective programming.

1.3 Objectives of the Study

The study aimed to evaluate interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital.

1.4 Specific objectives

This study was guided by three specific objectives at the National, community, individual, and hospital level as outlined below:

I. To explore the factors for access to and use of ART services among HIV Positive adolescents.
II. To examine the mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital.
III. To assess the outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital.

1.5 Research Questions

IV. What are the contextual factors that influence ART adherence among adolescents living with HIV at Mukono General Hospital?
V. What mechanisms are triggered by existing ART adherence interventions at Mukono General Hospital?
VI. What outcomes are produced when specific mechanisms operate within particular contexts, and mechanisms at Mukono General Hospital?

1.6 Justification of the study

The realistic review of adherence to antiretroviral therapy (ART) among HIV Positive adolescents and testing in Uganda aimed at providing a comprehensive understanding of the current landscape of ART adherence in the country. This study included examining existing data and exploring various mechanisms available to enhance adherence, including educational programs, by looking at what interventions work or not and under what circumstances they work (Pawson,2006) as far as evaluating interventions for ART adherence are concerned. By examining existing data and exploring various mechanisms available to enhance adherence,

including educational programs, peer support initiatives, and healthcare infrastructure improvements, the researcher uncovered insights into effective interventions. Through this exploration, it intended to shed light on the likely outcomes of these interventions, considering factors such as socioeconomic status, access to healthcare, and psychosocial support. Although different scholars, such as Kiwanuka et al. (2020), Kizito et al. (2022), and MacCarthy et al. (2018) explored ART adherence among HIV Positive individuals in Uganda, their findings do not provide a proper representation of the situation at Mukono General Hospital. Also, efforts to disseminate the research findings would increase awareness about ART adherence among adolescents, elucidating the effectiveness of interventions, their target populations, contextual nuances, and potential unintended consequences. This research also adopts an M&E Lens which is beyond measuring adherence by examining whether the interventions build adolescent agency, strengthen peer and institutional relationships and create conditions for sustained self-management beyond donor-funded activities.

Ultimately, this research endeavored to inform policy, program development, and clinical practice to better support HIV Positive adolescents in managing their health effectively in Uganda. General knowledge obtained will be used for future findings by policymakers in various sectors, such as doctors and public health academicians, among others, to provide insight and ideas that may be of benefit to them. It will also be used to identify gaps as far as ART adherence among Positive adolescents is concerned by exploring the different interventions.

1.7 Significance of the Study

This research endeavors to generate thorough and empirically supported findings. The results of this study have the potential to provide policymakers with invaluable insights that can be utilized to inform the development of administrative roles, policies, guidelines, and strategies. The ultimate objective is to improve adolescent adherence to ART by the study's evidence-based recommendations.

The primary objective of the research is to explore the perspectives and knowledge of important individuals involved in the management of ART services for adolescents at Mukono General Hospital, as well as the wider setting of Uganda.

The research aims to lay the groundwork for developing mechanisms to ensure accountability and oversight in the delivery of ART services in Mukono District. The objective is to improve adherence among adolescents, not only at Mukono General Hospital but also on a larger scale throughout Uganda.

In addition to contributing to the existing body of literature, the purpose of this study is to fill the current knowledge gap about the trend of adherence to antiretroviral therapy (ART) among adolescents at Mukono General Hospital.

The investigation findings will result in the production of extensive literature, which may prove to be of great use to future researchers who are interested in researching topics that are congruent with the investigation that is being proposed.

The research will help to generate knowledge that may be used for future findings by policymakers such as Health Officers, Academicians, and Monitoring and Evaluation specialists, among others.

1.8 Scope of the Study

1.8.1 Content Scope

The study focuses on evaluating interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. The study looks into examining the access and use of ART, existing mechanisms for ART adherence, and the outcomes associated with ART adherence among HIV adolescents at Mukono General Hospital.

1.8.2 Geographical Scope

The study was carried out at Mukono General Hospital, which is located along Kampala Jinja Highway in Mukono Municipality, in Mukono District, which is situated in the Central region of Uganda. It is bordered to the east by Buikwe District, to the north by Kayunga along the River Sezibwa, to the northwest by Luwero, and to the southwest by Wakiso. In addition, it

extends southward to Tanzania, encompassing the islands of Buvuma District and Lake Victoria. Mukono General Hospital lies at coordinates: 0.3599° N, 32.7474° E.

1.8.3 Time Scope

The study scope covers a total period of six (6) years from 2019 to 2024. This period covers the period since the ART Guidelines were last updated, with a fervent emphasis on increasing ART adherence among adolescents.

1.9 Theoretical background

The study was guided by two theories, namely, the Social Action Theory (SAT) and the Health Behavioral Model (HBM), as explained below:

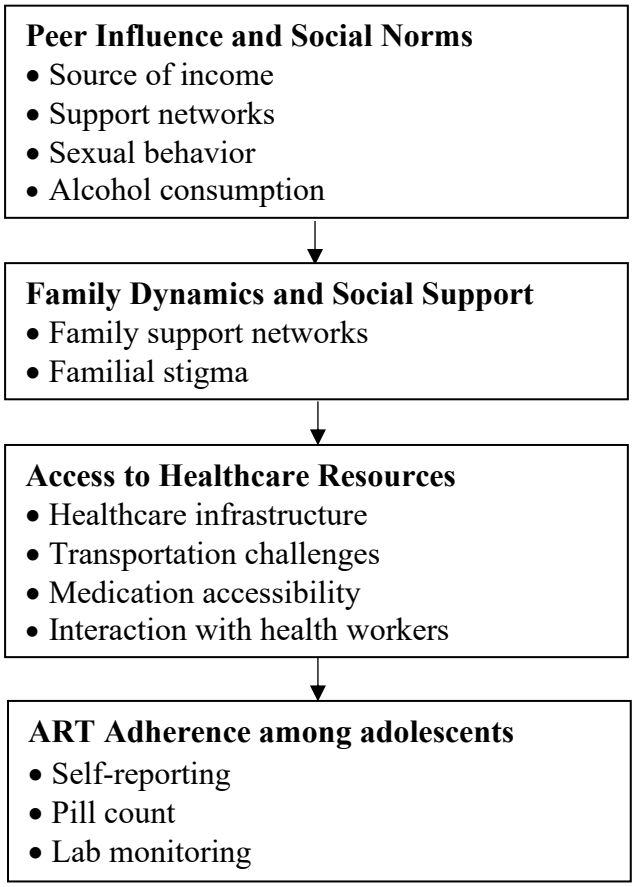
1.9.1 SOCIAL ACTION THEORY

The Social Action Theory (SAT) was developed by Talcott Parsons in 1937 as a model guided by expectations regarding how certain things in one's environment might act and react. The SAT posits that individuals' actions and behaviors are influenced by their social environment, including interactions with others, societal norms, and cultural contexts. (Burton-Crosby, 2022). The SAT emphasizes the importance of understanding how individuals interpret and make sense of their social world, and how these interpretations shape their actions. The theory entails that individuals engage in purposeful behavior based on their subjective interpretations of situations and their perceived consequences. (Garret, 2021) These interpretations are influenced by social factors such as peer pressure, family dynamics, institutional structures, and cultural beliefs. SAT highlights the agency of individuals in shaping their behavior, emphasizing that they actively construct and negotiate their roles within society. (Sabini, 2021)

Adolescents' adherence to ART is influenced by a multitude of factors, including their interactions with peers, family dynamics, cultural beliefs, and access to healthcare resources according to Whiteley et al (2021). SAT underscores the significance of individual agency in navigating these social influences and making decisions regarding medication adherence. According to SAT, interventions aimed at improving ART adherence among ART adherence should consider their subjective interpretations and wellness (Sabini, 2021). This approach involves addressing behaviors. In consideration of these factors and tailoring interventions accordingly, healthcare providers can better support adolescents in adhering to their regimen, ultimately improving health outcomes and quality of life for this vulnerable population. (Burton-Crosby, 2022)

According to the SAT, factors associated with ART adherence among adolescents include contextual factors (peer influence and social norms, family dynamics and social support, and access to healthcare resources which include environmental, and mental health factors, baseline medical characteristics, and HIV clinic visits. (Whitely et al, 2021) The social regulatory processes include social isolation, family rejection, stigma, disclosure, exploitation by older men in society and limited interaction with clinic staff and the health actions as well as outcomes include poor adherence and risky behaviors. SAT can help to promote proper adherence through counselling by peers, friends, parents and community leaders by encouraging the adolescents to adhere to proper treatment.

Figure 1 Social Action Model (SAT)



Source: Burton-Crosby,2022

One of the Some of the disadvantages of the Social Action Theory are that it is based on society's interactions with other individuals to shape their actions. This limits the ability of an individual to shape their own decisions because it does not promote autonomy of thinking hence advocating for the Health Behavioral Model.

The Health Behavioral Model

The was guided by the HBM developed by Hochbaum, Rosenstock, and Kegels in the 1950s. It posits that individuals' health-related behaviors are influenced by a combination of personal beliefs, perceptions, and external factors (Chu &Liu, 2021) The HBM provides a framework for understanding and predicting health behaviors, particularly in the context of preventive health measures and health-promoting behaviors. (Moradhaseli et al , 2021) In the context of adherence to ART among adolescents, the HBM entails the following:

Personal Beliefs: Adolescents' personal beliefs about their susceptibility to HIV/AIDS and the severity of the disease can influence their adherence to ART. (Ates et al, 2021) For instance, an adolescent who perceives themselves to be at low risk of contracting HIV may not prioritize adherence to ART. Similarly, adolescents may have beliefs about the severity of HIV/AIDS and its consequences on their health, which can motivate or discourage adherence behaviors. Additionally, beliefs about the effectiveness of ART in controlling HIV and improving health outcomes play a crucial role. If adolescents believe that ART is highly effective, they may be more motivated to adhere to their medication regimen.

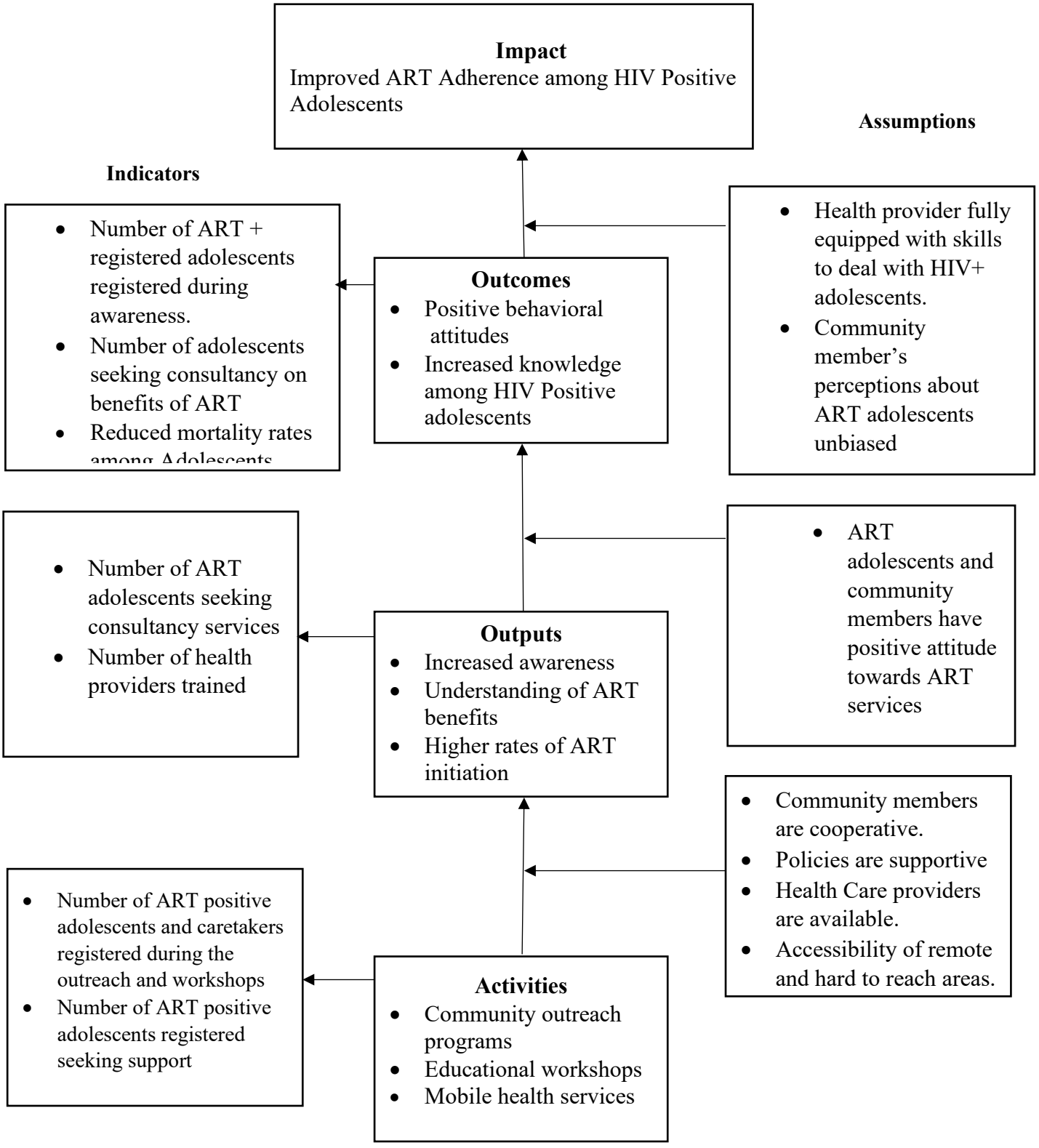
Perceptions: Adolescents' perceptions of ART adherence, including their understanding of the benefits and barriers, can impact their adherence behaviors. (Ates et al, 2021) Perceived benefits of adherence may include improved health outcomes, reduced risk of disease progression, and increased life expectancy. Equally, perceived barriers such as medication side effects, stigma associated with HIV/AIDS, or difficulty adhering to a strict medication schedule can hinder adherence. Adolescents' perceptions of these benefits and barriers will influence their motivation and ability to adhere to ART. (Perkins et al, 2022)

External Factors: External factors encompass various influences from the social and physical environment that can affect adolescents' adherence to ART. These factors include access to healthcare services, availability of medication, socio-economic status, social support networks, and cultural norms. Adolescents with limited access to healthcare services or who face financial barriers may struggle to adhere to ART. Social support from family, friends, or healthcare providers can positively influence adherence behaviors by providing encouragement, reminders, and practical assistance. Additionally, cultural norms and stigma surrounding HIV/AIDS may impact adolescents' willingness to disclose their HIV status and seek support for adherence. (Chu &Liu, 2021)

Within the context of the Health Behavior Model, interventions can be devised to address the specific requirements and obstacles that adolescents have when it comes to sticking to antiretroviral therapy (ART). These interventions can be developed by taking into consideration personal beliefs, perceptions, and environmental influences. Educational programs, peer support initiatives, counseling services, and changes in healthcare infrastructure are some of the kinds of interventions that could be implemented to facilitate adherence to antiretroviral therapy (ART) among adolescents living with HIV/AIDS. (Tarantino et al, 2020).

1.10 INITIAL PROGRAM THEORY

Figure 2: The Initial Program Theory for the Interventions for improving ART Adherence among HIV Positive Adolescents.



Source: Author's own

The above illustration is the theory of change which shows how interventions lead to desired changes or shows the effect cause-and-effect relationship between the activities, outputs or immediate outcomes that influence the intermediate outcomes thus leading to the overall impact or goal which is improved ART adherence among HIV positive adolescents. Different sections critically affect or determine the other.

The middle part of the illustration presents the activities running up towards the impact. The right-hand side shows how the assumptions that affect the general success of the project while on the left are the indicators of achievement and the progress of the project.

Activities

From the above illustration, if the community members are cooperative with supportive policies, availability of health care providers, and accessibility of remote and hard-to-reach areas, the activities or interventions designed to improve ART services such as community outreach programs, educational workshops, and mobile health services were implemented. Adefolalu, 2018). This was determined by the number of indicators such as several positive adolescents and takers caretakers registered during outreach and workshop programs as well as the number of positive adolescents registered seeking ART services.

Outputs

These are immediate results from the activities mentioned activities above that include increased awareness of the ART services, Understanding of the ART benefits as well as higher ART initiation. For instance, if ART adolescents have a positive attitude towards ART services, then there may be increased awareness of ART services, better understanding of ART benefits as well and higher ART initiation. This is indicated by several factors, such as several number of adolescents seeking ART consultancy services and the number of healthcare providers trained. Consistent with findings from Kiwanuka et al. (2020). On peer support for Adolescents.

Outcomes

These are intermediate results that are obtained from the outputs, such as Positive behavioral change, positive attitude, and increased knowledge among HIV positive adolescents. If we assume that the health providers are fully equipped with skills to deal with HIV positive adolescents, then there are positive behavioral attitudes among the adolescents and the

community members' perception of ART adolescents is be unbiased. This is indicated by several factors such as an increased number of ART Positive registered adolescents during awareness programs, reduced mortality rates, improved CD4 count, and better health outcomes. Muiyuro (2020)

Impact

Impact is defined as the ultimate long-term desired outcome or main goal of the intervention. Maena et al. (2021). In the above illustration, the impact is to improve ART adherence among HIV positive adolescents at Mukono General Hospital.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter provides a comprehensive evaluation of the research obtained from reputable sources on the assessment of interventions aimed at enhancing ART adherence among HIV Positive adolescents at Mukono General Hospital. It includes the contextual factors for access and use of ART services among HIV Positive adolescents, existing mechanisms for improving ART adherence among HIV Positive adolescents, and the outcomes of the mechanisms for enhancing ART adherence among HIV Positive adolescents. An initial program theory for evaluating interventions for improving ART adherence among HIV Positive adolescents is illustrated based on the literature.

2.1 Contextual Factors for Access and Use of ART Services among Positive HIV Positive Adolescents

In the factors for access and use of ART services among HIV Positive adolescents, different scholars provide evidence in regards to the subject matter, such as socioeconomic status, geographical accessibility, and long distance to the health facilities. For example, in their study on the examination of the viral load non-suppression among adolescents in Mbale District, Eastern Rural Uganda, Maena et al. (2021) shed light on various factors influencing access and use of antiretroviral therapy (ART) services among HIV Positive adolescents having identified several key factors that include socioeconomic status, geographical accessibility, stigma, and discrimination. In Malawi, Antabe et al. (2023) affirmed that socioeconomic factors such as poverty and lack of financial resources were hindering adolescents' ability to access ART services, while geographical barriers, including long distances to healthcare facilities and transportation costs, pose additional challenges. Stigma and discrimination associated with HIV/AIDS also deter adolescents from seeking ART services due to fear of social rejection or confidentiality breaches (Mavhu et al., 2020). Furthermore, negative attitudes of healthcare providers towards adolescents living with HIV/AIDS may discourage them from accessing care (Andersson et al., 2020). Finally, the lack of adequate psychosocial support systems exacerbates these challenges, highlighting the multifaceted nature of barriers to ART service utilization among HIV Positive adolescents in rural Uganda (Ajuna et al., 2021).

There are social and Structural factors that influence household support for positive ART Adherence among HIV positive adolescents in developing countries such as Uganda. This is explained by Campbell et al. (2020), exploring the social and structural factors that identified various factors affecting access to and utilization of ART services by HIV Positive adolescents. They identified social factors such as stigma, discrimination, and lack of social support as significant barriers to accessing ART services. Lythgoe et al. (2021) also affirmed that structural factors including poverty, inadequate healthcare infrastructure, and limited availability of HIV services were also identified as key challenges. However, while their studies underscored the importance of family and community support in facilitating ART adherence among HIV Positive adolescents, it was affirmed that some individuals with no family background are left to rely on their close friends. In the findings by Otieno (2023), he emphasizes the complex interplay of social and structural factors in influencing access to and utilization of ART services among this vulnerable population. He highlights the need for comprehensive interventions addressing both individual and systemic barriers to improve HIV treatment outcomes among adolescents. This does not only apply in Kenya but also in other settings across the globe.

Other factors that examine the use and access of ART adherence among HIV positive adolescents are based on socio-demographic characteristics such as age, gender, educational level, and marital status, as well as psychosocial factors like perceived social support, stigma, and depression. A study by Muwanguzi et al. (2021) examines the access and use of ART services among HIV Positive adolescents in rural southwestern Uganda with a focus on understanding the factors that influence the retention of youths aged 15–24 years in HIV care from 344 participants, revealed several factors significantly influenced access and use of ART services among HIV Positive adolescents. While Sanga et al. (2019) highlighted the importance of healthcare system factors such as distance to the health facility, availability of ART services, and quality of care in influencing adolescents' utilization of HIV treatment services, they attested to the need for tailored interventions addressing these multifaceted factors to enhance access and retention in HIV care among adolescents in rural areas.

Mbalinda et al. (2020) employed Andersen's Behavioral Model of Health Care Utilization to explore the factors influencing contraceptive use among sexually active prenatally HIV-infected adolescents in Uganda. In their findings comprising predisposing, enabling, and need factors, provided a comprehensive framework for understanding healthcare-seeking behaviors

but bore no evidence in the content of Mukono General Hospital. As per Duru et al. (2020), predisposing factors, including socio-demographic characteristics and individual beliefs, influenced adolescents' attitudes toward contraceptive use but this study was not directly inclined to ART adherence. In the mirror of ART adherence, enabling factors such as accessibility, availability, and affordability of contraceptive services played a crucial role in facilitating or hindering access to care but did not guarantee adherence. Atuhaire et al. (2021) established that need factors such as perceived health status and severity of HIV infection influenced the urgency and frequency of healthcare utilization among adolescents in Africa, not only contraceptives but also ART services. The same study highlighted the importance of addressing these factors to enhance the uptake of ART services among HIV Positive adolescents. Owoko (2023) and Ajuna et al. (2021) asserted that by considering the complex interplay of individual, social, and environmental factors, healthcare interventions should be tailored to meet the specific needs of this vulnerable population, which would ultimately improve their health outcomes and quality of life.

A systematic literature review by Ferry et al. (2022) affirmed the health-related needs reported by adolescents living with HIV while receiving ART in sub-Saharan Africa, examining the access and use of ART services in the region. Their findings revealed several factors influencing access and utilization of ART services, including socioeconomic status, geographical location, availability of healthcare facilities, stigma and discrimination, knowledge about HIV and ART, and support from family and peers. According to Armoon et al. (2021), socioeconomic factors such as poverty and lack of financial resources were identified as significant barriers to accessing ART services, particularly among marginalized populations, but the scenario at Mukono General Hospital remains unknown. Andersson et al. (2021) revealed that stigma and discrimination associated with HIV/AIDS often deter adolescents from seeking care and adhering to treatment regimens. Supportive environments, comprehensive knowledge about HIV/AIDS and treatment options, and strong social support networks were found to facilitate access to and utilization of ART services among HIV Positive adolescents. MacCarthy et al. (2018) and Odongo et al. (2023) emphasize the importance of addressing socioeconomic inequalities, reducing stigma, and enhancing support systems to improve ART service uptake among adolescents living with HIV in sub-Saharan Africa but this plea has not been fully harnessed at Mukono General Hospital.

2.2.3 Interventions for Improving ART Adherence among HIV Positive Adolescents

Interventions for improving ART adherence among HIV Positive adolescents are mentioned by different scholars, such as Zeng et al. (2020). Self-efficacy in influencing medication adherence among people living with HIV (PLHIV) was a fundamental aspect in designing interventions to boost adherence. They anticipated that stigma negatively affects medication adherence, although this effect may be mitigated by medication support and ART self-efficacy. In a randomized trial by Ssewamala et al. (2020), it was affirmed that medication support would entail the assistance and encouragement provided by healthcare providers, peers, and family members in adhering to ART regimens. ART self-efficacy pertains to an individual's confidence in their ability to adhere to prescribed medication schedules despite perceived challenges and barriers as asserted by Ferry et al. (2022). A study by Antabe et al. (2023) in Malawi found that higher levels of medication support and ART self-efficacy were associated with better medication adherence among PLHIV, even in the presence of anticipated stigma although this study was not specifically attuned to adolescents. The findings by Otieno (2023) suggest that interventions aimed at enhancing medication support and self-efficacy could be effective methods for improving ART adherence among HIV Positive adolescents.

The literature by Quinn and Voisin (2020) on mechanisms for improving adherence among HIV Positive adolescents highlights various interventions aimed at addressing adherence challenges in this population. Whiteley et al. (2021) provide a comprehensive review of such interventions, emphasizing the importance of tailored approaches to meet the unique needs of adolescents living with HIV. According to Mbalinda et al. (2020), behavioral interventions, such as cognitive-behavioral therapy and motivational interviewing, were commonly employed to enhance adherence by addressing psychosocial factors influencing medication-taking behavior during the COVID-19 pandemic period which was characterized by limited movement and other stringent measures. Ajuna et al. (2021) stated that technology-based interventions, including mobile health applications and text message reminders, have, over the years shown promise in promoting adherence through increased communication and support. However, Crockett et al. (2020) stated that some patients may not be tech-compliant and fail to merit the current digital edge. Furthermore, MacCarthy et al. (2018) affirmed that structural interventions, such as integrating HIV services into schools or community centers, would reduce barriers to accessing care and support services but this calls for customized planning. Ferry et al. (2022) underscored the importance of multidimensional approaches that combine

behavioral, technological, and structural interventions to effectively support ART adherence among HIV Positive adolescents.

Kizito et al. (2023) investigated the impact of a family-based economic intervention on antiretroviral therapy (ART) adherence among adolescents living with HIV in Uganda and found that the phenomenon calls for integrated mechanisms. From their Structural Equation Model, they revealed that the economic intervention had a significant positive effect on ART adherence among HIV Positive adolescents speaking to the affordability of transport and fulfillment of basic needs of life. Jopling et al. (2020) suggest that the economic empowerment of families is crucial in improving medication adherence among adolescents living with HIV. However, Muwanguzi et al. (2020) emphasized the importance of addressing socioeconomic factors in addition to medical interventions to enhance treatment outcomes for HIV Positive adolescents. In light of Campbell et al. (2020), providing families of HIV Positive adolescents with economic support, such interventions can help alleviate financial barriers to accessing and adhering to ART medication although this may not be fully guaranteed. Crockett et al. (2020) emphasized the need for holistic approaches that address the socio-economic mechanisms to improve the adherence to ART among HIV positive adolescents.

A study on the effectiveness of peer support in improving testing, linkage to, and engagement in HIV care among people who inject drugs (PWID) in Indonesia conducted by Iryawan et al. (2022) revealed that peer support, characterized by mutual aid and shared experiences, emerged as a vital mechanism for promoting adherence to ART among HIV Positive adolescents. In the cascade, Jopling et al. (2020) revealed that peer support networks have facilitated access to HIV testing services, encouraged timely linkage to care, and provided ongoing emotional and practical support to adolescents living with HIV as evidenced across different African countries. Duru et al. (2020) emphasized the importance of peer-led interventions in reducing stigma, enhancing medication adherence, and fostering a sense of belonging and acceptance within the HIV positive community. Evidence from Tanzania underscored the role of peer support as a valuable tool for addressing barriers to ART adherence among HIV Positive adolescents and this highlighted the need for tailored interventions that harness the power of peer networks to improve general health outcomes and better quality of life for this vulnerable population. (Sanga et al., 2019).

Steinert et al. (2022) affirmed the vitality of economic well-being in improving ART adherence among HIV Positive adolescents in South Africa. Having employed a prospective cohort design to explore mediating pathways associated with adherence behaviors, they affirmed that boosting ART adherence calls for synchronized efforts. The findings by Stringer et al. (2024) revealed that economic well-being significantly influenced ART adherence among HIV Positive adolescents. Quinn and Voisin (2020) postulated that higher economic well-being was linked to better adherence rates over time. According to Whiteley et al. (2021), several mediating pathways through which economic well-being impacted adherence we identified, including increased access to healthcare services, improved medication availability, and enhanced social support networks. Lythgoe et al. (2021) affirmed the importance of addressing economic barriers to ART adherence among HIV Positive adolescents although their findings do not provide a true representation of the situation at Mukono General Hospital. Interventions conceived from the stigma index exercises highlighted the need to improve economic well-being through social protection programs, financial assistance, and employment opportunities may contribute to better adherence outcomes and overall health outcomes for this vulnerable population (Okonji et al., 2020; Andersson et al., 2020).

2.2.4 Intervention outcomes to enhancing ART Adherence among HIV+ adolescents

Different scholars such as Quinn and Voisin (2020) revealed a growing interest in exploring the outcomes of various mechanisms aimed at enhancing ART patients. In a realist review by Laurenzi et al. (2022), it was investigated that the effectiveness of psychosocial interventions targeting adolescents and young people living with HIV would create a vital understanding of how those interventions operate in different contexts to improve adherence and viral load outcomes. Galárraga et al. (2020) alluded that the complexity of adherence behavior emphasizes the need for tailored interventions that address the unique psychosocial challenges faced by HIV positive adolescents. By adopting a realist perspective, the review seeks to uncover the underlying mechanisms through which psychosocial interventions exert their effects, considering factors that include social support, mental health, stigma, and access to resources. Through their comprehensive analysis, Laurenzi et al. (2021) provide valuable insights into the potential pathways through which interventions can enhance ART adherence and ultimately contribute to improved health outcomes among HIV Positive adolescents.

An investigation by Adams et al. (2022) exploring the significance of resilience among adolescents receiving HIV care in Kenya highlighted the role of each stakeholder in overcoming barriers to ART adherence. Stringer et al. (2024) emphasized the importance of psychosocial support mechanisms and resilience-building interventions in promoting ART adherence among HIV Positive adolescents. Through interviews, Muiyuro (2020) found out that adolescents exhibited resilience in navigating challenges associated with HIV status disclosure, stigma, and medication adherence. However, although Sanga et al. (2019) demonstrated adaptive coping strategies and resilience in managing ART patients, the situation at Mukono General Hospital remains unknown thus emphasizing the need for tailored support services and peer networks. The findings of Mutumba et al. (2022) underscored the positive outcomes of resilience-focused interventions in promoting ART adherence and improving health outcomes among HIV Positive adolescents. Armoon et al. (2021) reaffirmed that by addressing psychosocial factors and strengthening resilience, healthcare providers and policymakers could enhance HIV care engagement and adherence among adolescents, ultimately contributing to improved health outcomes and quality of life in this vulnerable population

Steinert et al. (2022)'s exploration of the outcomes of mechanisms aimed at enhancing ART adherence among HIV positive adolescents echoes the particular focus on economic well-being as a potential mediator. Okonji et al. (2020) employ psychosocial support interventions to investigate the impact of economic interventions on ART adherence, although these do not provide assurance assure the phenomenon. Laurenzi et al. (2021) revealed various mediating pathways through which adherence behaviors could be drafted among adolescents living with HIV. The findings by Mutumba et al. (2022) highlight the significant role of economic factors in shaping adherence outcomes, with improved economic well-being associated with higher rates of ART adherence but with no specific focus on youths. Adams et al. (2022) identified several mediating pathways, including access to resources, healthcare utilization, and psychosocial support, which help elucidate how economic interventions impact adherence behaviors. Owoko (2023), research underscores the importance of addressing economic barriers to ART adherence among HIV positive adolescents and highlights the potential effectiveness of targeted economic interventions in improving treatment outcomes in this population. Albeit this, there is a need to devise.

Abuogi et al. (2023) outline a protocol for a sequential multiple assignment randomized trial (SMART) aimed at improving retention and viral suppression among adolescents and young adults living with HIV in Kenya in which they revealed that ART adherence among HIV+ adolescents requires a multifaceted approach. Muiyuro (2020) focuses on implementing mechanisms to enhance ART adherence among HIV positive adolescents attuned to assess the effectiveness of various intervention strategies, namely, behavioral counseling, mobile health interventions, and peer support groups, in improving adherence to ART regimens. In Uganda, Maena et al. (2021) postulated by utilizing a viral load design, the researcher dynamically adjusts the intervention strategies based on individual participants' responses and adherence levels over time. The outcomes of this trial will provide valuable insights into the most effective approaches for promoting ART adherence among HIV positive adolescents, ultimately contributing to improved retention in care and viral suppression rates in this vulnerable population (Tozan et al., 2021). Their findings do not provide adequate evidence on the various mechanisms to boost ART adherence among HIV Positive adolescents.

The study by Tozan et al. (2021) investigated the efficacy and cost-effectiveness of the Suubi+ Adherence intervention in improving adherence to ART among HIV positive adolescents in southern Uganda. from their study, the suggested interventions, based on family economic empowerment, aim to address the socio-economic barriers that hinder ART adherence. Results from the cluster-randomized controlled trial demonstrate that the Suubi+ Adherence intervention significantly improves the suppression of HIV viral loads among adolescents living with HIV. Steinert et al. (2022) addressed economic challenges faced by families, the intervention indirectly supports adolescents in adhering to ART regimens, and their outcomes to determine how best to bolster ART adherence among adolescents. The findings of Quinn and Voisin (2020) underscore the importance of addressing socio-economic factors in HIV care and treatment strategies, particularly among vulnerable populations such as adolescents. Stringer et al. (2024) highlight the potential cost-effectiveness of family-based economic empowerment interventions in improving ART adherence and ultimately reducing HIV transmission rates in communities, but further attest that interventions differ by context.

2.3 Research gap

The literature review provides comprehensive insights into the examination of the access and use of antiretroviral therapy (ART) services, mechanisms for improving ART adherence, and outcomes of interventions that are aimed at enhancing ART adherence for HIV Positive

adolescents. Various studies though not limited to Maena at al. (2021), Mavhu et al. (2020) and Campbell et al. (2020) highlight socioeconomic factors, geographical accessibility, stigma, discrimination, healthcare provider attitudes, and psychosocial support as key factors influencing the access and the utilization of ART services for the HIV Positive adolescents. Additionally, scholars such as Otieno (2023), Ssewamala et al. (2020), Kizito et al (2023), and Jopling et al. (2020) interventions such as family-based economic empowerment, peer support networks, behavioral interventions, technology-based interventions, and structural interventions have been proposed to improve ART adherence among this population. The researcher also noted that the different scholars applied varying methodologies, and conducted their studies in different locations focused on the 95-95-95 framework as revealed by Musanje et al. (2023) therefore, the researcher identifies methodological, geographical, and context.

Furthermore, the outcomes of these interventions suggest significant improvements in ART adherence and undetectable HIV viral loads among HIV Positive adolescents, particularly through interventions. This is revealed by Quinn and Voisin (2020) and Sanga et al. (2019) also acknowledge the need for tailored approaches to address multifaceted environmental factors. While the reviewed and reviewed studies offer valuable insights, there is a need for further studies that particularly focus on the specific context of Mukono General Hospital. This will help to understand the effectiveness of different interventions and mechanisms to improve ART adherence among HIV Positive adolescents in that setting. Overall, the literature underscores the importance of holistic and context-specific interventions to support ART adherence and improve health outcomes among HIV Positive adolescents.

CHAPTER THREE: METHODOLOGY

3.0 Introduction

This chapter specifically presents the research methodology for evaluating the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. Presented in chapter three are; study design, study area, information sources, population and sampling techniques, sampling techniques and procedures, variables and indicators, measurement levels, data collection instruments/tools, quality/ error control, data collection procedure, strategy for data processing, analysis and interpretation, anticipated methodological constraints, and ethical considerations.

3.1 Research Design

The research adopted a grounded theory study design, involving the information of data collected that was analyzed and then used to come up with theories based on real-life context methods. A qualitative research method was utilized only by using qualitative data management approaches as a foundation to explore the facts from the submissions of the participants. Therefore, qualitative methods were used to analyze the narrative findings and make comparisons of the study outcomes.

3.1.1 Realist Evaluations

Realist evaluations consist of theory-led approaches that seek to understand what exactly works for whom, or not, how, and in what circumstances they operate by providing theoretical evidence to the various interventions. Realist Evaluations help to explain whether the interventions used to explain certain interventions are effective or not. (Pawson & Nick 2004). To evaluate a new initiative or project, the evaluation theory requires deriving theories from the collected data to suit the given intervention outcomes.

Realist evaluations help to provide a coherent, consistent framework by providing a range of orders to engage with programs in which evaluation plays a vital role. This was done through formative evaluation by gathering and making an analysis of feedback or information during the development of the project. Realistic Evaluations provide summative moments in the policy cycle to determine the effectiveness of the interventions.

Realist evaluation theories differ from other theory-based approaches by specifying what context, and mechanisms that generated the outcomes, and what features that affect how those mechanisms operate. Wong et al. (2016)

Realist theories are built based on testing theories to develop middle-range theories. These are often based on existing theory, previous experiences as well as research studies.
Marchal et al. (2012)
The use of realist evaluation helped the researcher to make an in-depth exploration of what, how, and why interventions work in a specific setting. (Groh,2018). The researcher used the realism theory which was used to produce a tested theory about what works, for whom, and under what circumstances. (Pawson & Nick 2004).
Some of the basic concepts in the realist evaluation include Context, Mechanism, and Outcome as follows;

Context
This is defined as features or situations into which programs are introduced that affect the operation of the program mechanism. Context included examples such as social-economic, and environmental factors. They can also be defined as conditions that activate a mechanism to bring about an outcome ranging from a range of different phenomena.
(Pawson & Nick 2004).

Mechanism
This is defined as ways in which components or any one of the components bring about change. Sometimes the components may lead to positive or negative outcomes. Mechanisms are triggered by the interventions at hand. They are based on how stakeholders interpret the interventions. Mechanisms are usually hidden but activated by the context conditions to bring outcomes. (Vogel & Punton 2018).

Outcome
This is the result of the intervention. An outcome can be both positive or negative depending on the context and mechanism employed. Therefore, the use of realist theory was used to evaluate interventions to improve ART adherence among HIV Positive adolescents at Mukono General Hospital. (Pawson & Nick 2004).

3.2 Area of study

The study was conducted at Mukono General Hospital located in Mukono Municipality in Mukono District in Central Uganda. This is due to the deteriorating retention of ART patients among adolescents ranging below the Fast-Track-Track targets or UNAIDS 95-95-95 Targets (UNAID 2025 AIDS Targets). Another Justification to find out if the interventions aimed at improving ART adherence among HIV Positive adolescents also work in the context of Mukono General Hospital. The study was conducted at the ART clinic which is part of the

hospital serving a current population on treatment of 10,247 as at 31st December 2023 (Uganda EMR,2023).

3.3 Sources of Information

Under the explorative design, the researcher utilized both primary and secondary data collection methods that ensured a comprehensive understanding of the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital.

3.3.1 Primary data;

The researcher made initial attempts at getting primary/raw data by using semi-structured and unstructured interview methods. This included probing to get interactions and ART experiences from the adolescents living with HIV at Mukono General Hospital. According to Groh (2018), the core raw facts included information that had never been acquired or reported by a single individual before.

3.3.2 Secondary data;

Following the suggestion put forth by Bell et al. (2022), the researcher scrutinized the archived records at the Ministry of Health (MoH), the national documentation center, and specifically chosen files from Mukono General Hospital. This selection enabled the researcher to delve deeper into secondary data. Given its previous publication, this secondary data provided readily accessible factual evidence.

3.4 Population and sampling techniques

3.4.1 Population

In this study, the population comprised HIV Positive adolescents who are between the ages of 13 to 19 years, health workers, parents, and care givers for the adolescents who may not be able to explicitly express themselves, expert clients, HIV Positive peer leaders, hospital administrators, health partners, MoH officials, and the Mukono District Health Office. The HIV Positive adolescents provided their lived adherence experience. The health workers provided the experiences faced by HIV Positive adolescents, drawing from their experience that motivated peers to adhere to ART. Hospital administrators provided the administrative overview regarding ART adherence among HIV Positive adolescents attending Mukono General Hospital. The health partners offered deep insights, drawing from their experience in administering HIV and treatment services to PLHIV. The MOH officials at Mukono District

Health Office provided the local government perspective regarding ART adherence among HIV Positive adolescents.

3.4.2 Sampling Techniques

The researcher used purposive sampling to select participants to provide their views as individuals bearing an in-depth understanding and great wealth of knowledge on the interventions for improving ART adherence among HIV positive adolescents at Mukono General Hospital. This was done with hidden saturated sampling by interviewing as many HIV positive adolescents as possible until no new information could be obtained from them. Other participants included health workers, key informant parents and caregivers for the adolescents who may not be able to express themselves explicitly, counselor's hospital administrators, health partners, MoH officials, and the Mukono District Health Office. According to Tracy (2019), the researcher employed purposive sampling to select individuals with a high level of knowledge and comprehension to explore the interventions for improving ART adherence among HIV Positive adolescents at Mukono District General Hospital.

3.4.1 Sample size & sample selection

Considering the magnitude of the population under investigation, as recommended by Bell et al. (2022), it is advisable to select a substantial portion of the study population to ensure a representative sample. As outlined in section 3.4.1, the researcher utilized a sample size of 25 individuals for data collection in the field.

3.5 Procedure for Data Collection

A letter of introduction was obtained from UCU to provide the researcher with assistance throughout the process of getting approval for the research project at Mukono General Hospital, which was selected. Specifically, this paper was addressed to the appropriate authorities at the hospital, as well as the Ministry of Health secretariat, the Mukono District Health office, and the Mukono General Hospital. As soon as the researcher obtained consent, they used relevant instruments that they thought were appropriate (Bell et al., 2022). Formal appointments were scheduled with all of the key informants to explore issues concerning the influence that administrative jobs have on the performance of teachers.

3.5.1 Data collection instruments

The data collection instruments included semi-structured interview guides, focus Group discussions, and key informant guides. All the above information was recorded and transcribed to have accurate findings and for proper data analysis.

3.5.2 Semi-structured Interview Guides

The interview guide consisted of semi-structured, open-ended questions drawn from the study objectives to explore the interventions for improving ART adherence among HIV Positive adolescents in Uganda. (Creswell and Clark 2017). Recommend scheduling appointments as a good practice to confirm the timing and locations of the interviews, and to determine the appropriate dates on which the same took place. Each interview session ran between twenty and twenty-five minutes.

3.5.3 Focus Group Discussion Guide

Malunda and Atwebembeire (2021) suggest that an FGD serves as an efficient means of collecting qualitative data from several individuals in the same space of time. In line with this recommendation, an FGD guide comprising primarily open-ended structured questions was crafted. The FGD was organized based on the research objectives to explore the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital.

3.5.6 Key Informant Guide

The key informant guide included the ART Adolescents, Parents or Caretakers for the adolescents below the age of 15 years, the ART department that included clinical nurses, counselors, community members such as the VHTs, and community leaders.

3.7 Data collection methods

3.7.1 In-depth Interviews

The in-depth interviews collected primary data from ten (10) participants. This approach was chosen for its flexibility in gathering information, allowing the interviewer to have full control over the questions. The researcher engaged key informants during these interviews to obtain the specific data required for the study as recommended by Malunda and Atwebembeire (2021). Under this method, the researcher used an interview guide which was used to collect the narrative data.

(2) health workers working with the ART clinic, two (2) expert clients, one (1) hospital administrator, one (1) individual working from health partners specifically Baylor Uganda, two (2) MoH officials, one (1) official from Mukono District, (1) Village Health Team (VHT) and sixteen (16) HIV Positive adolescents partaking ART from Mukono Hospital. In total, twenty-five (26) participants were be involved in this study.

3.7.2 Focus Group Discussion

To gather qualitative insights from adolescents on evaluating interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital, the researcher employed focus group discussions. According to Bell et al. (2022), FGDs provided an opportunity for participants to express their opinions in great detail about the interventions for improving ART adherence among HIV Positive adolescents. The FGDs facilitated in-depth conversations, by capturing a range of perspectives and experiences, thereby enriching the understanding of the issues at hand. The FDGs included the HIV Positive adolescents, parents, and caregivers for those adolescents below the age of 18 years. The researcher used a recorder to get all the information shared by the participants during the data collection process.

3.7.3 Key Informants

The key informants are people who have firsthand information about ART adherence at Mukono General Hospital. These included HIV Positive adolescents, health workers in the ART clinic, counselors, community leaders, and Village Health Teams (VHTs)

3.8 Quality/ Error Control

This segment delineates the measures implemented to ascertain the credibility and consistency of the research tools, showcasing the researcher's commitment to upholding stringent criteria for data integrity and precision, as elaborated below:

According to Bell et al. (2022), credibility is the accurate and true representation of participant responses that reflects the proper interpretation of the original participant's views. To establish credibility, the participants were mailed the themes and associated sub-themes to make sure their answers were included. In response, the 16 participants were in a position to express satisfaction with the themes. To give context, eventual themes were presented alongside excerpts taken from participant narrations.

The term "dependability" refers to the consistency of findings over time and under a variety of settings (Kyngas, Kaariinen, and Elo, 2020). For this investigation, dependability was

accomplished by utilizing the participants' precise responses to describe the themes and subthemes. The process of outlining all of the actions that were taken to recruit participants and to analyze the data was also successful in accomplishing this goal. Consequently, this provided transferability by providing a detailed account of all the procedures that were completed during the data collection process.

Nowell et al. (2017b) defined "transferability" as the extent to which the findings of the research can be applied to diverse contexts. This study ensured transferability by furnishing comprehensive descriptions of the participants, research setting, data collection and analysis methods, and by presenting thorough and precise data encompassing a broad spectrum of information. Thus, this study successfully achieved transferability.

3.9 Data processing and analysis

The qualitative data analysis methodology to be employed in this study is explained as follows, The researcher used content analysis to perform a thorough examination of the participants' responses in order to discover the underlying themes and delve deeply into the assertions, narratives, and descriptions that were offered by the participants. By applying Context-Mechanism-Outcomes Configurations (CMOs) (Pawson & Nick, 2004).

Middle Range Theories (MRTs) enabled the researcher to identify specific contexts in which mechanisms are triggered to produce outcomes, enhancing the understanding of recurring patterns (Gilmore et al., 2024). The researcher identified CMOs using MRTs to uncover the underlying causal processes that explain the apparent variations in the effectiveness of the interventions in the different settings. This was used in the process of editing, coding, organizing, summarizing and refining qualitative raw data, the theories applied to improve practice and policy (Roodbari,2022) Through the process of editing, coding, organizing, summarizing, and refining qualitative raw data, the researcher uncovered overarching themes, sub-themes, and patterns while also refining theories to explain how and why certain themes emerge (Tracy, 2019).

3.10 Ethical considerations

The following are the ethical considerations that were considered:

Confidentiality and Anonymity: Throughout the entirety of the research process, the researcher endeavored to keep all the issues discussed within the research loop and never to

share them with any outside party as this would ensure the integrity of the data collected. All individuals involved in the study were treated with respect as autonomous persons, and their identities were protected from exposure to anybody outside of the research circle.

Informed consent: The researcher obtained an informed consent from the participants which justified their willingness to participate in the study without being coerced.

Ethical clearance: The researcher obtained ethical approval from both the UCU Ethical Review Committee and the Research Ethics Committee (REC). Contact was then be established with Mukono General Hospital, Mukono District Health Office, and the MoH using an introductory letter provided by UCU.

Fairness and voluntary participation: The researcher obtained ethical approval from both the UCU Ethical Review Committee and the Research Ethics Committee (REC). contact was then established with Mukono General Hospital, Mukono District Health Office, and the MOH using an introductory letter provided by UCU. A commitment to maintaining fairness and voluntary involvement during the selection process was made by the researcher. This commitment helped to ensure that participants are not subjected to any form of coercion or undue influence, as well as cultivating an atmosphere that is conducive to genuine engagement and contribution.

Formal introduction of the research team: Following the recommendations that were suggested by Chen and Simons (2018), the researcher and team provided a comprehensive introduction to each participant, elaborating on the objectives of the study. This promoted transparency that ensured that participants had a clear understanding of the research project at the beginning of the research endeavor.

Information dissemination: To promote the dissemination of the findings of the research, a copy of the finished research work was distributed to the relevant stakeholders who were involved in the study, as this helped to promote knowledge sharing, stakeholder engagement, and informed decision-making. This is in accordance with the recommendations made by Bailey and Trudy (2018).

Informed consent: The researcher endeavored to seek informed consent to ensure that no one was coerced to engage in the study.

3.11 Methodological constraints or challenges

Limited Access to Data: The sensitivity of information at the ART clinic may be a point to worry about because it requires different hierarchies of clearance to obtain authorization to access it. Since some information is online-based, required usernames and passwords to access which the researcher secured permission from the responsible parties. For this matter, the researcher made prior notification to the respective authorities seeking formal permission to access the data.

The use of qualitative data often leads to a loss of track of questions and time wasting because it requires a lot of time to gather information from an individual.

Sample Bias: The study only covers Mukono General Hospital, leaving out other hospitals and health facilities where ART services are provided to HIV Positive adolescents. The researcher included other individuals outside the hospital to provide their insights on the interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital.

CHAPTER FOUR: DATA PRESENTATION OF FINDINGS

4.0 Introduction

This chapter presents the findings of the primary data collected through interactions with the HIV positive adolescents, Caretakers or parents, Health workers, social workers, counselors, and the Hospital Administrative officer at Mukono General Hospital. The interventions identified include social-economic interventions, mobile health services, technological interventions, psychosocial support from health workers, counsellors, peer and family support groups.

4.1 Characteristics of the study participants

Table 1 Characteristics of the Adolescents and Their Responses

Respondent Code	**Gender**	**Age**	**Area of location**	**Age when started ART Adherence**
Participant 1	Male	16	Bekerere	9 years
Participant 2	Male	16	Nagalama	5 Years
Participant 3	Female	19	Mbalala	I don't remember
Participant 4	Female	16	Eastern Nasuti	5
Participant 5	Male	13	Kolo Nantabulilirwa	2 years
Participant 6	Male	19	Kisoga	14 Years
Participant 7	Male	15	Kitete	8 years
Participant 8	Female	18	Nasuti	5 Years
Participant 9	Male	16	Nyeje	I do Know when I started taking them
Participant 10	Female	17	Wantoni	When I was a young girl
Participant 11	Male	19	Kigombe	At nine years

Participant 12	Female	15	Goma	Not sure of the age
Participant 13	Female	18	Nakisunga	At 6 years
Participant 14	Female	19	Wantoni	At 12 Years
Participant 15	Female	16	Mbalala	I don't remember
Participant 16	Male	16	Kalagi	7 Years

Table 2 Characteristics of the Key informants and their responses

Respondent Code	**Category**
Key informant 1	Social Worker/ Counsellor
Key Informant 2	Social Worker/Counsellor
Key Informant 3	Individual from Makerere Water Reed Project
Key Informant 4	Health Worker / Ministry of Health Official
Key Informant 5	Health worker/ Ministry of Health Official
Key Informant 6	Parent
Key informant 7	Parent
Key informant 8	VHT in the community
Key informant 9	Official from Mukono District
Key informant 10	Hospital administrator

Summary of interventions and CMOs

Realist evaluations using Context +Mechanism =Outcome (CMO) were employed to unearth how the different mechanisms were about to bring about a positive or negative change. The different interventions may succeed based on the contexts that determine the mechanisms that lead to a positive or negative outcome. A positive outcome portrays the success of the context, while a negative outcome portrays the failure of the context. The CMOs are aligned with the middle range theories based on what interventions work based on or not. The different interventions employed exist at the hospital, community as well as individual levels.

Table 3 Summary of interventions and CMOs

Intervention	**Context**	**Mechanism**	**Positive Outcome**	**Negative Outcome**
Social Economic Interventions	Availability of funds from the government and other NGO's	Economic Incentives	Affordability of transport costs	Misuse of the transport incentives provided to the adolescents
	Attitude of adolescents to learn and utilize the educational services	Education Services	Economic Empowerment of the Adolescents leading to sustainability	Insufficient funds for the hospital to run all the activities efficiently
	Willingness to support the mobile services		knowledge that influences the startup of ventures by adolescents	
Mobile Health Services	Willingness at the hospital level to support the mobile services	Education Services	Accessibility of the ART services at the community level	Insufficient funds at the hospital due to the high sustainability costs of the mobile services
	Availability of funds at the hospital level to	Telemedicine Services	Fewer hours spent at the hospital facility	

	support the mobile services			
			Knowledge of the use of ART services	
		Persuasion of Adolescents to adhere to ART services	Behavioral change leading to Better ART services and improved self-efficacy	
			Change in attitude of the adolescents	
Technological Interventions	Willingness of the adolescents, caretakers, and parents to learn and utilize the technological devices efficiently	Education	Utilization of the technological devices	Some people are not able to afford
	Availability and affordability of technological gadgets.	Motivation through awareness campaigns	Timely uptake of medication	Illiteracy for some users to utilize the gadgets
Psychosocial support from the health workers, counsellors	Capacity Building at the hospital	Education	Increased turnout at the hospital facility Due to more services offered to the Adolescents Increased self-efficacy	Congestion due to the increased turnout at the health facility.
	Professionalism and the willingness of the hospital personnel in the ART clinic	Motivation		
Peer Support Groups	A conducive hospital environment that enables the start-up of peer groups or clubs	Education services to adolescents	More adolescents turn up for ART services	Bad health habits are promoted by some peer groups

		Empowerment		
	Willingness of adolescents to establish peer groups	Persuasion of adolescents	Behavioral Change among Adolescents	Congestion at the ART Clinic due to more adolescents turning up of the adolescents
	Willingness of the community to accept peer groups		Increased self-efficacy	
Family Support Groups	Attitude of the family groups such as parents	Motivate Adolescents	Increased Self-Efficacy Behavioral Change among Adolescents	Congestion at the ART Clinic due to more people turning up
	Willingness of the family groups to support, counsel the adolescents	Education services for adolescents	Increase the uptake of adolescents seeking ART Services	
	Financial capability of family members	Financial support Persuasion of adolescents	Improved health	Financial constraints on families to support the HIV Positive adolescents effectively Non-disclosure by some family members and caretakers

4.2ART adherence interventions and CMOs

4.2.1 Social Economic Interventions

Poverty plays a crucial role as one of the major causes of poor ART adherence outcomes among HIV Positive adolescents. Financial constraints directly affect the HIV + adolescents in

different ways, such as not being able to afford necessities like transport costs to the health center or even affording a balanced diet. Social and socioeconomic support interventions exist in various ways, like direct financial assistance provided to the vulnerable population. Social economic interventions are based on conditions such as the availability of funds at the hospital level from government and non-government organizations that are efficiently used to hire trained personnel who can equip the social workers and other health workers with financial literacy training that they pass on to the adolescents. The attitude of adolescents to learn and utilize the economic or business skills provided. The Mechanisms for socio-economic interventions include financial incentives, business skills training, through workshops and Business skills training. This provides relief to the adolescents and perceived feasilbility of clinic attendance. It also enables them to get access to the health facility and get their medical refills with ease, hence improving ART Adherence. While having a one-on-one with the health workers at Mukono General, one of them mentioned the transport incentives provided by the hospital, for instance, Participant seven said that;

'We offer free transport to some of the adolescents who may not be able to afford the medical costs to the Hospital'.

This is so because some of the HIV Positive adolescents are not able to afford the transport costs to the medical facility. For example, the Participant four said that;

"*Poverty leads to poor adherence because some of us cannot afford the transport to come for our refills.'*

However, outcomes such as the financial incentives through transport provision are short-term and may not be successful, once for the reduction or failure to provide the financial incentives may lead to the adolescents not turning up for the ART-related services.

While interacting with some of the HIV+ adolescents, a number of them raised concerns that the transport provided is not provided regularly, participant one said that;

"*Sometimes I have to walk from my home to the Hospital because their days when the hospital does not give us transport to pick up the medicines."*

This, therefore, leads to poor ART outcomes. It was evidenced through interactions with some counsellors and social workers that some adolescents are not able to access the health centers because they end up spending the money given to them on transport costs to come to the health centers for other activities, hence limiting ART adherence at MGH. Other findings reveal that

some adolescents are very close to the proximity of Mukono General Hospital but deliberately refuse to come to the hospital to pick up their routine medication, while some misuse the transport money provided and spend it on other activities, hence leading to poor ART adherence levels among them.

Other conditions for the socioeconomic conditions to work include the attitude and willingness of the adolescents to learn and utilize the business skills taught to them inform of setting up business ventures. This mainly applies for adolescents who are above 18 years old and willing to start up income generating activities. Adolescents are empowered with business skills to start up their own businesses to improve their lives and hence create sustainability. The education of business skills is through workshop training for adolescents at Mukono General Hospital. For example, Key informant One said that;

"*We normally have financial literacy workshops on economic skills to educate PLWHIV that include the HIV positive adolescents."*

However, the hospital is currently hindered by insufficient funds, especially with the current USAID funding suspension that has been covering 70 % of the HIV activities in Uganda, including Mukono General Hospital. NGO's such as Makerere University Water Reed Project (MUWRP), are funded by USAID, hence their suspension directly affects the activities for improving ART adherence, with the inclusion of Mukono General Hospital.

For instance, Key informant three said that;

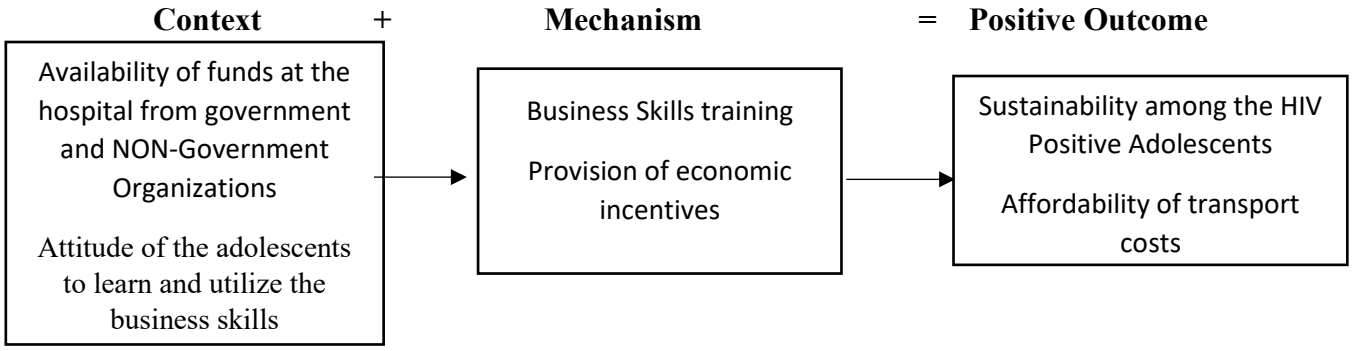
"The cut of USAID's funding is going to greatly affect the ART clinic because we have been getting funding for most of these activities and we are now worried of what will happen to the Positive adolescents and other groups that we support, for example we shall not be giving them transport or have the funds to conduct regular visits in the communities where they stay as we used to".

While the fourth key informant said that;

'Medical outreaches are conducted but there are no funds at the moment'

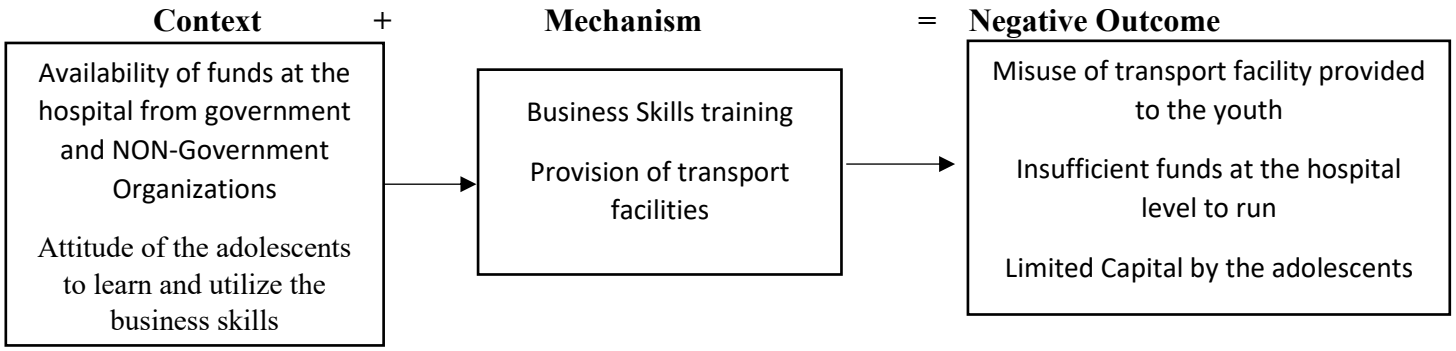
This in general, leads to negative ART adherence among HIV + Adolescents.

Figure 3 social Economic Interventions



Source: Author's own

Figure 4 1 Social Economic Intervention



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4.2.2 Use of Mobile Health Services

Mobile Health services involve the use of mobile technology to provide health-related services and pass on information to the adolescents in their local communities such as homes, community clinics. The services provided include mobile health clinics, mobile health apps that help patients to monitor their blood heart rate as well as their lifestyle for better health outcomes. Other mobile health services include phones that help to remind, make calls, track, and monitor one's health. Mobile health services help to overcome the challenge of transport costs to the medical facilities and also help to address geographical barriers by bringing the services closer to the people. The mobile health services are based on conditions such as the desire for the hospital to provide the mobile health facilities, the willingness of the adolescents

to accept and use the mobile health services, as well as the local institution's willingness to accept the mobile health services. The mechanisms for mobile health services include telemedicine, where drugs and other medical-related services are delivered to the communities where the adolescents live. For example, the second key informant responded by saying that;

"We deliver ART drugs to the communities to ease service delivery for some people who may not be able to come to the hospital."

This means that adolescents do not have to go to the health facility to receive the medication because they receive it conveniently.

One of the advantages of mobile health services is that they help to provide space at the hospital because the adolescents do not have to physically be there to access the ART services because they are able to get them in the communities. As stated by key Participant number 16.

'One of the challenges we face is limited space when we come to the ART clinic for medication.'

Mobile health services also include education services where the adolescents learn how to live a positive healthy life. For example, the fourth key informant said that;

"We normally have medical outreaches to the communities where we teach the adolescents about better adherence practices."

Delivery of mobile Health Services helps to provide awareness to the HIV Positive adolescents through mass media campaigns, public service announcements that help the adolescents to make better informed choices and increase self-efficacy. This also leads to more dissemination of information to the adolescents at the community level.

For example, Participant Number six shared her testimony that:

'Community outreach programs have created sensitivity to all parties concerned for the treatment of HIV/AIDS'.

Mobile health services help to persuade Positive adolescents by reaching out to them at the grassroots level in their local communities. The adolescents are then provided with a platform that enables them to freely express themselves, and in turn, the health workers offer solutions that change their mindset to adopt better behaviors and a lifestyle change, leading to better adherence. For example, Participant Number Five said that;

"They have done home visits where I stay and taught me how to live a Positive life."

Delivery of Mobile health services helps to reduce cases of stigma and discrimination that may be experienced at the health facility, thus leading to better ART adherence among the HIV positive adolescents. Delivery of the ART drugs also helps to reduce delays and congestion, as one of the challenges that were faced by the adolescents when they visit the hospital for their medical refills.

"We are many who come to pick medicine, yet the attendants are few. we therefore spend a lot of hours in queues waiting for our turn to receive medicine, which takes almost a whole day and affects some other activities that we have to do".

As stated by Participant Number Seven, the delivery of the mobile health services helps to reduce time and delays experienced at the health facility, leading to better ART Adherence.

Mobile health services such as home visits are also used as a way of tracking the adolescents in case they miss out on taking their medication or when they do not visit the hospital as per their schedules, the social workers are able to track them down by visiting them and find out in case the adolescents are facing any challenges and motivate them or offer other solutions. This was discovered through interactions with the social workers and the adolescents.

Other mobile health services include free testing and counselling services to the HIV + adolescents at the community level and household level. The free testing of HIV services leads to more people who test as compared to those who go to the health. This was evidenced by participant number four who said that;

'Mobile health services have increased testing services in communities and have also increased the number of people who start ART'

However, one of the challenges faced by the mobile services includes high sustainability costs that are currently affected with limited funds, especially from the NGO sector, due to USAID's withdrawal of funding, which has affected several activities with Mukono General Hospital as well. For example, key informant four advised that;

"*The government should increase support; NGO's have tried their best, but the government should come out to strongly support HIV services".*

Therefore, the increase in funding from the government will lead to positive outcomes as a result of better adherence.

However, irrespective of the existence of the mobile services, there's still more need to extend them near the communities, as key informant number five advised;

'There's a need to increase the testing services in the communities by the government and development partners.'

As this will help to improve adherence. Figure 5: Use of Mobile Health Services

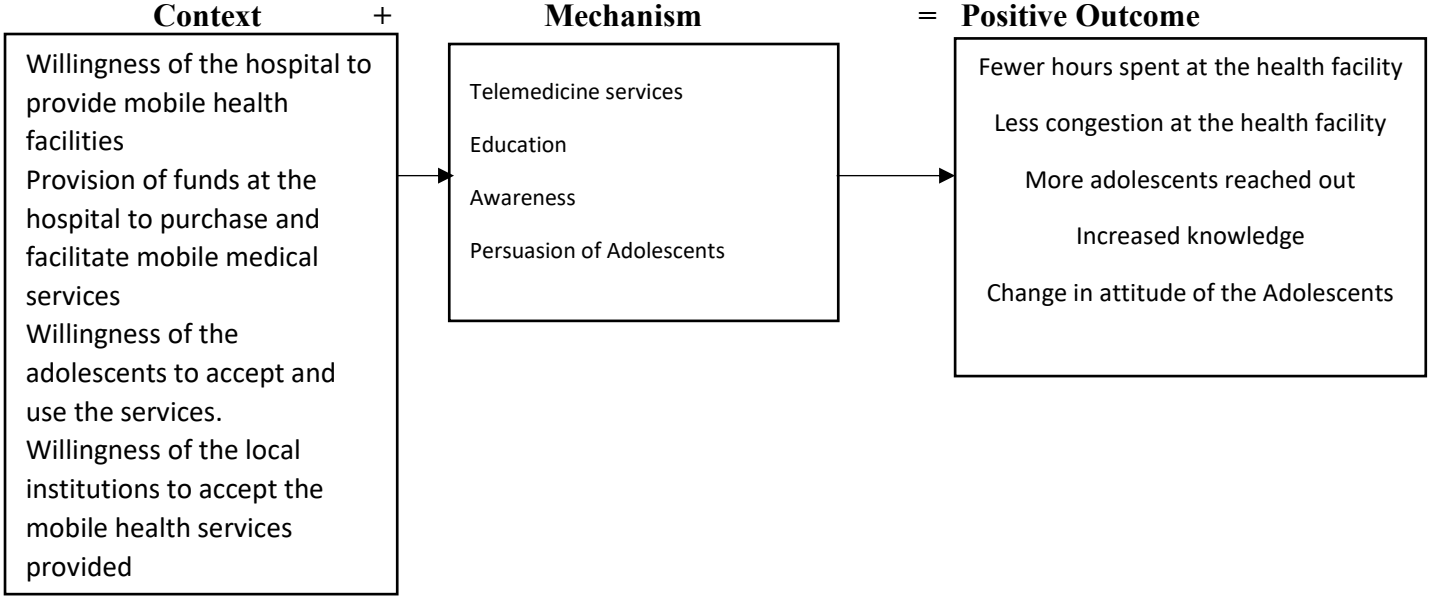

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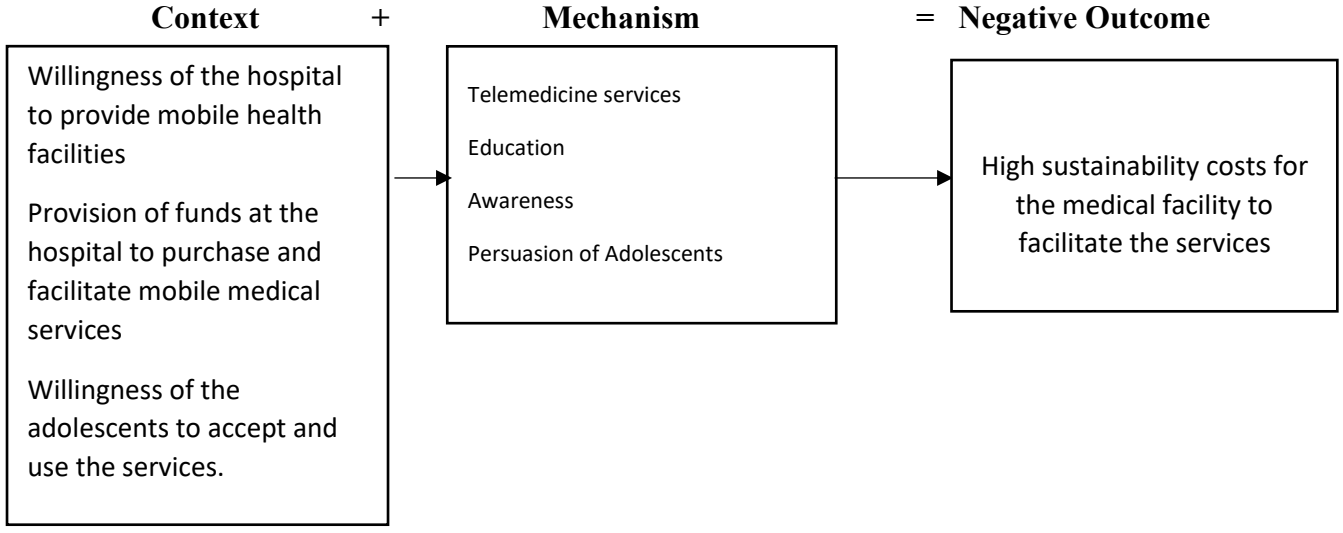
Figure 6 Use of Mobile Health Services



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4.2.3 Use of technological interventions

Technology-based interventions involve the use of scientific knowledge to address health needs and concerns. The technological platforms include SMS reminders, alarm clocks, and Mobile

Applications to remind adolescents to take their daily medications at the required schedule. Technological interventions are used by different stakeholders such as HIV + Adolescents, social workers, parents, caretakers, counsellors, among others. Technology interventions are based on conditions such as their affordability, durability, as well as the willingness of the users and the local institutions to make good use of them.

Some of the mechanisms of the technological interventions include creating awareness campaigns about better adherence by providing a platform through digital and virtual campaigns for adolescents to share with the vast communities. While having a one-on-one, Key informant number one advised that;

"Adolescents can have behavioral change through several platforms, like watching videos, films that will inspire change in their mindset.

Some of the mechanisms of the technological interventions include educating adolescents about better adherence by providing platforms, such as the use of websites, that can be used to provide access and information about HIV and treatment strategies. This was, however, not discovered at Mukono General Hospital during data collection.

Social workers regularly use technological services such as phones to make calls to the adolescents and remind them about their hospital visits and other encouraging words to motivate them, hence leading to Positive ART adherence. for example, during the focused group discussions with the HIV Positive adolescents, participant number 9 said that;

"*They always call to remind us about our appointment dates.''*

While participant number 15 said that;

"I use an alarm clock that reminds me to take my drugs every 24 hours".

This shows the benefits of technology used as a reminder to proper adherence.

Counsellors and caretakers educate the adolescents about the importance of using the digital reminders for better adherence and the dangers of missing taking their prescribed medication on time, and what can be done to achieve this. Some of the disadvantages of technological interventions may be based on the illiteracy of some users of digital platforms making it hard for them to use them as well as those some adolescents who are not able to afford some of them like phones or alarm clocks. Some of the adolescents have heard about the newly advanced technological interventions like the long injectable although many of them said that they are

not so sure about when it will be available in Uganda and its price but they expressed with hope that it will solve the challenge of poor ART outcomes like missing on the daily prescribed dosage

Figure 7 Use of technological interventions

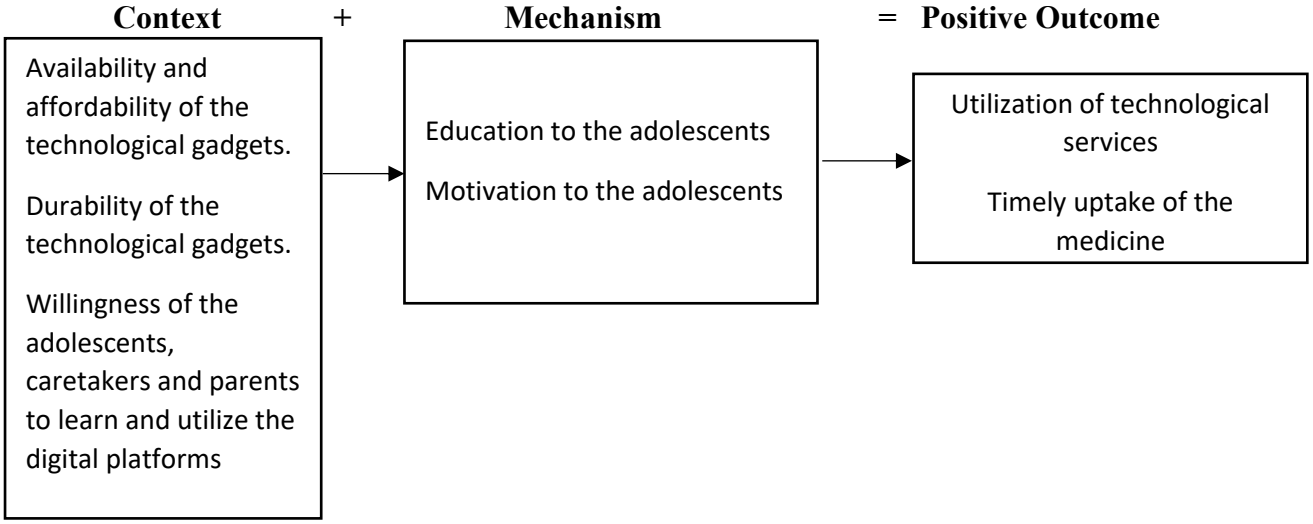

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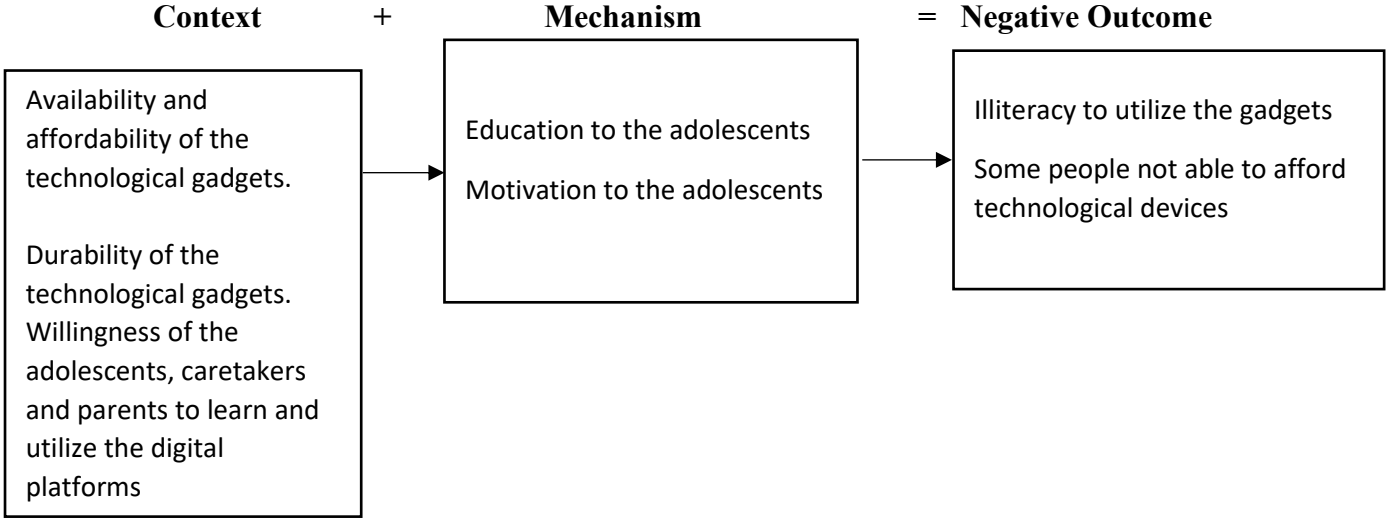
Figure 8 Use of technological interventions



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4.2.4 Psychosocial support from the health workers, counsellors

Psychosocial support is based on the context, such as Capacity building at the hospital level to employ well-trained medical officers, counsellors, and social workers who know how to handle the HIV positive adolescents. Other hospital initiatives for better ART adherence include the

establishment of a youth Clinic to specifically handle the issues that adolescents face. The professionalism and willingness of the hospital personnel in the ART Clinic, attitude, and willingness to handle the patients with respect, empathy, and kindness help to improve ART adherence.

There is presence of a Youth Clinic at Mukono General Hospital that provides a supportive environment to adolescents to offer educational, counselling, and awareness to the HIV HIV-positive adolescents, hence leading to better ART adherence among the vulnerable population.

According to the study conducted, the positive attitude and the willingness of the medical workers, social workers, and counsellors to attend to the adolescents whenever they turned up for their routine checkups and medical visits with kindness and motivation led to better adherence outcomes. For example, participant number nineteen said that:

"I am always treated well whenever I come for my medication, no one has ever treated me harshly, the nurses are kind and understanding.'

At the individual level, the adolescents were always educated about the benefits and dangers of not taking their medication on time, the benefits of having a balanced diet, the importance of proper storage of the medication, and routine checkup calls. This in turn leads to increased self-efficacy and more turn up of adolescents turning up at the hospital for medical refills and routine checkups. For example, participant six said that:

"*We are always advised and counselled whenever we come for medication''.*

However, the initiatives that increase the number of adolescents who turn up at the medical facility for routine visits lead to congestion and long queues that demotivate some adolescents from visiting the health facility due to much time spent waiting for their medical refills, which leads to reduced ART.

Discrimination and stigma were, however, cited in the communities where the adolescents live with difference groups of people, such as friends, neighbors, and relatives where they live which they find challenging. Some of the adolescents and caretakers raised concerns of discrimination from the schools, especially in boarding schools. Some adolescents in boarding schools face discrimination and stigma from peers upon learning their HIV status, leading to poor adherence. It was also evidenced that there is self-stigma among some of the HIV Positive adolescents not taking their drugs regularly or on time due to fear of being seen by their peers

taking their drugs, leading to poor adherence levels. Through the discussions with the HIV Participant number 14, some said that:

"Some people fear being seen taking tablets because they fear being seen by their friends".

This, therefore, leads to poor adherence.

Even with no evidence of discrimination from the health workers at Mukono General Hospital, there is still a greater need for psychosocial support among the adolescents, as some of the adolescents had become suicidal. For instance, while discussing with the key informant, six said that:

"Some adolescents are suicidal, especially when they learn that they were born with HIV and they know that they have to take the medication for the rest of their lives". "They always ask me why they were born this way and why they deserve to live".

"This therefore calls for more psychosocial support and counselling to such adolescents".

Figure 9: Psychosocial support from the health workers, counsellors

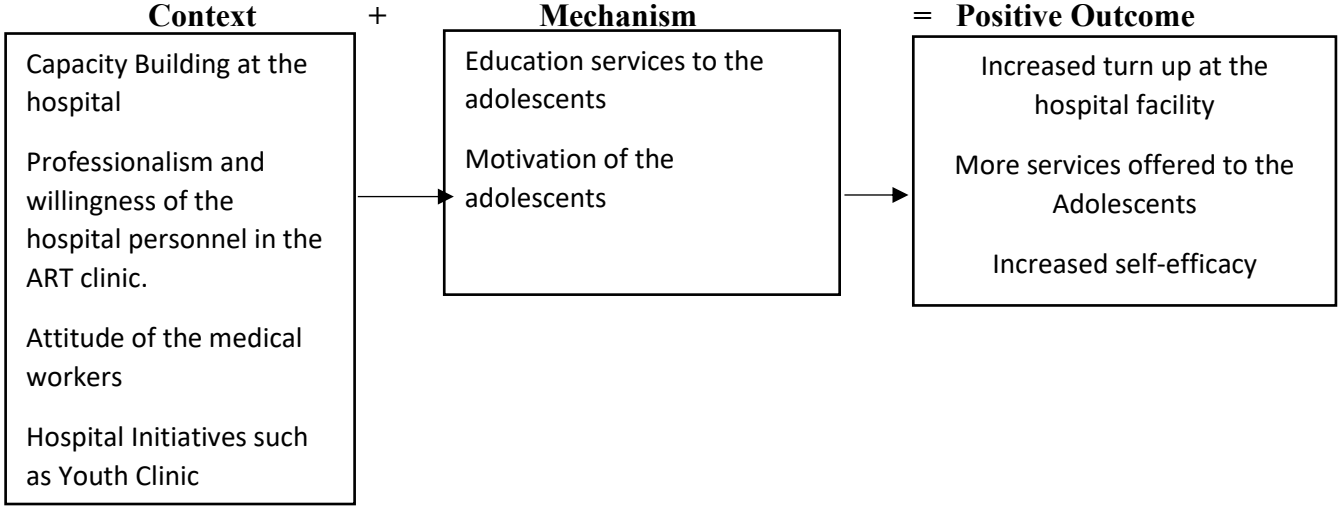

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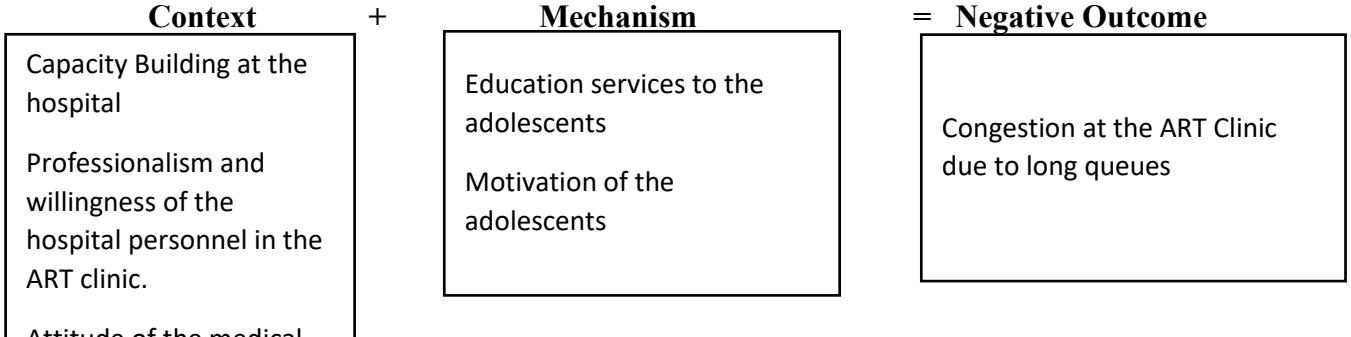
Figure 10 Psychosocial support from the health workers, counsellors



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4.2.6 Peer Support Groups

Peer support groups among the adolescents at Mukono General Hospital help to give the adolescents a sense of community belonging with their age mates. At the hospital level, the context for peer support groups includes a conducive environment that enables the adolescents to start up peer groups to meet and discuss the HIV related issues that affect them and how they can be addressed. The willingness of the adolescents to start up the peer groups happens to be one of the conditions for the success of the peer groups, as well as the willingness of the community to accept peer groups.

The groups are organized with peer leaders who are usually used as champions to the rest of the adolescents to motivate, educate, and support the HIV Positive adolescents. The adolescents discuss issues that affect them freely, which they may not discuss with some of their parents, counsellors or medical workers since they have more trust in their fellow age mates and are thus able to share some of the issues they face with ease. Through the peer support groups, the adolescents inspire each other by sharing medical experiences through life lived success stories. This helps to address issues, myths and misinformation about HIV related issues that that help to reduce fear among the adolescents.

For example, Participant number five said that;

'Some adolescents fear to be seen taking tablets on time because they will be seen by their friends'.

Such challenges and fear are able to addressed by interacting among their peers.

Peer groups help to fight stigma and discrimination that adolescents may be facing in their communities through friends and family members thus increasing self-efficacy. For instance, during the focus group discussions with the Positive adolescents, participant eight said that;

"I am in charge of my life and health, I will start falling sick and die if I do not take my medicine daily, I therefore have to be careful with my life".

Through peer groups, there is improved mental health due to open communication among the adolescent support leading to less suicidal tendencies. The outcome of the peer groups leads to better adherence levels and general improvement in the quality of life. During the discussions, participant number four said that;

"My groupmates have helped me to live a positive life by always encouraging me to take my medication on time".

The increased self-efficacy that leads to increased visits at the health facility also leads to congestion at the health facility due to the increased turn up for medical services thus a negative outcome. Some peer groups may also lead to habits and behavior behaviors such as smoking, alcoholism that are bad health habits for the Positive vulnerable groups.

However, there is need to increase support to the peer support groups by creating more groups that need to inspire their fellow adolescents in order to inspire fellow HIV + adolescents for better adherence outcomes.

'We need to have more peer support groups and support from the hospital to inspire ourselves for better living'.

As discussed by participant number twelve.

Figure 11 Peer Support Groups

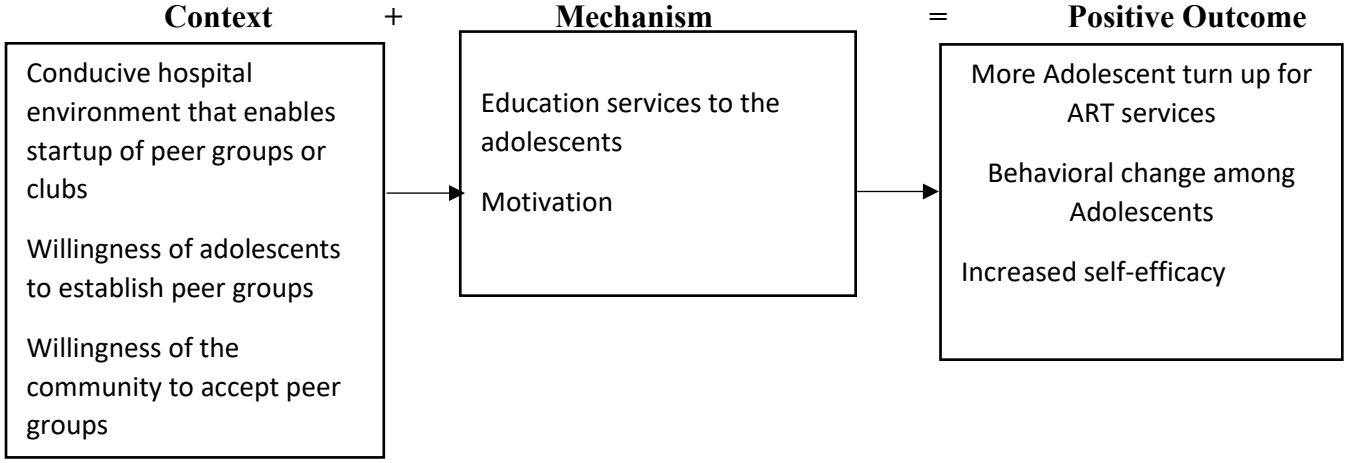

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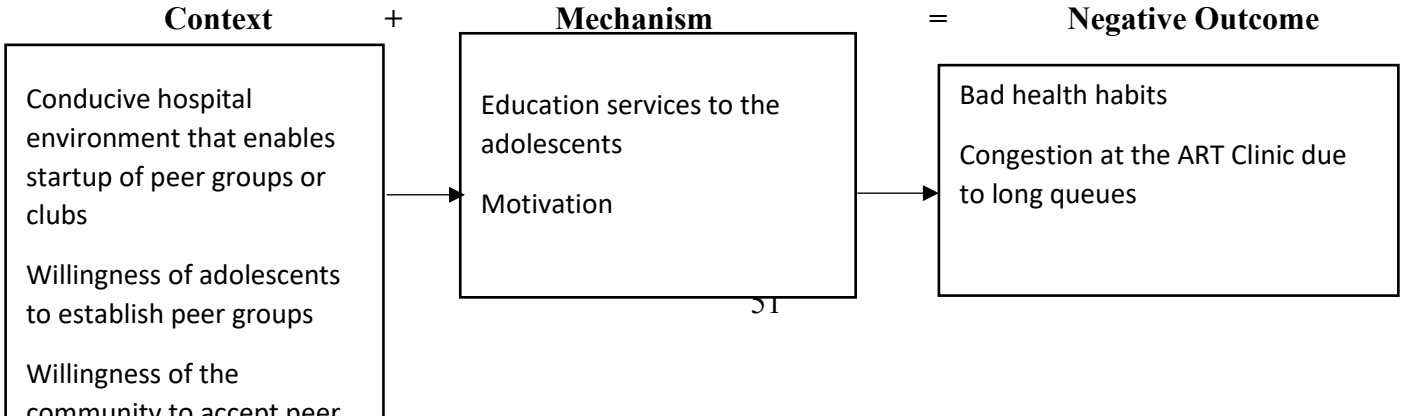
Figure 12 Peer Support Groups



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4.2.7 Family Support Groups

The HIV burden cannot be managed by the HIV Positive adolescents alone because they are vulnerable and thus need a safe and supportive environment from their family members. Family support from parents, guardians, siblings and care takers help to promote ART adherence based on the context of attitude of family groups, interpersonal relationships of the caretakers and adolescents as well as the willingness of the family groups to support the adolescents through mechanisms like education services to adolescents, motivation and status disclosure for some adolescents who may not be aware of their status. Family support groups help to address some of the challenges that adolescents may be facing, such as stigma and discrimination, which lead to improved health by being empathetic and understanding.

Family support groups help to motivate the adolescents by providing emotional support, open communication through free sharing, and interpersonal relationships with them which leading to improved mental health. For example, while interacting with parents some said that:

"These adolescents need our help and guidance because they may end dying young if we do not act".

This makes the adolescents feel empowered and thus able to overcome some obstacles such as discrimination and stigma.

Parents and caretakers play a very crucial role in educating and offering guidance to the HIV positive adolescents for better ART adherence. The Adolescents are therefore taught about the importance and ways of proper adherence to the positive adolescents leading to better health outcomes. This leads to increased knowledge among the HIV Positive adolescents to handle HIV related issues with positivity. Parents and caretakers help to persuade the HIV Positive adolescents through counselling services and assisting the adolescents to go for routine

checkups at the medical facility. The family groups also play a very key role on reminding the adolescents to take their medication on time through use of technology devices such as setting up alarm reminders. For example, participant number ten said that:

"My mother always sets up an alarm on the phone which reminds me to swallow my tablets".

This has helped to lead to positive health outcomes.

Family support helps to provide financial assistance, such as provision of transport to the health center and affordability of basics to the adolescents, such as diet, shelter, and other necessities that they may have. For example, Participant number four said that

'*My parents provide me with transport to pick up my medication when I come to the hospital.'*

However, some families may be overwhelmed and overburdened and thus may not provide proper care to the HIV Positive adolescents, which may lead to negative outcomes, while some families discriminate and stigmatize against the vulnerable groups, leading to self-isolation. For instance, while interacting with some of the HIV adolescents, poverty was one of the major causes for poor ART adherence, with the majority of them saying that their parents and caretakers are not able to afford some of the basic needs, such as a balanced diet and transport facilities to the health center. For example, participant number six said that:

"Parents are not able to support their adolescents financially because of poverty".

Non-disclosure because some family members are reluctant or fear to reveal to the adolescents' HIV status, leading to withdrawal from ART adherence because some of them are not told early enough the reason as to why they are taking the tablets. Several adolescents, especially those below the age of find themselves taking the medication without ignorance. Upon finding out that they are taking ART medicine, some of them withdraw from taking it. This also causes conflicts and suicidal tendencies in adolescents. For example, while interacting with the key informants, one and two emphasized that:

"Parents and caretakers fail to disclose to the adolescents about their status early enough, which makes the adolescents hate themselves, leading to withdrawal from taking medication, which is a danger to their lives".

The increase in the HIV Positive adolescents at the health facilities leads to congestion and delays at the facility, which is a negative outcome.

Figure 13: Family Support Groups

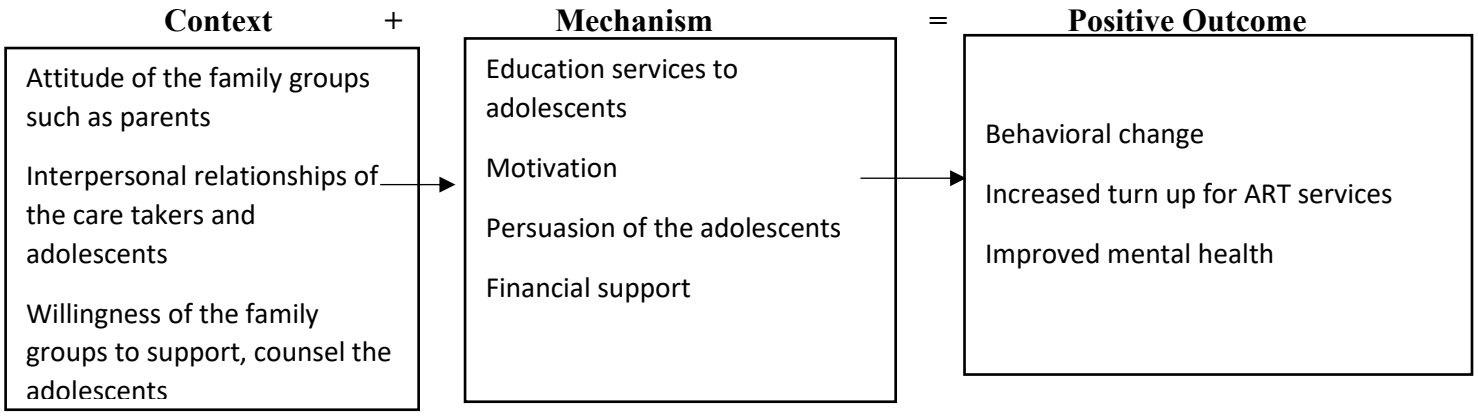

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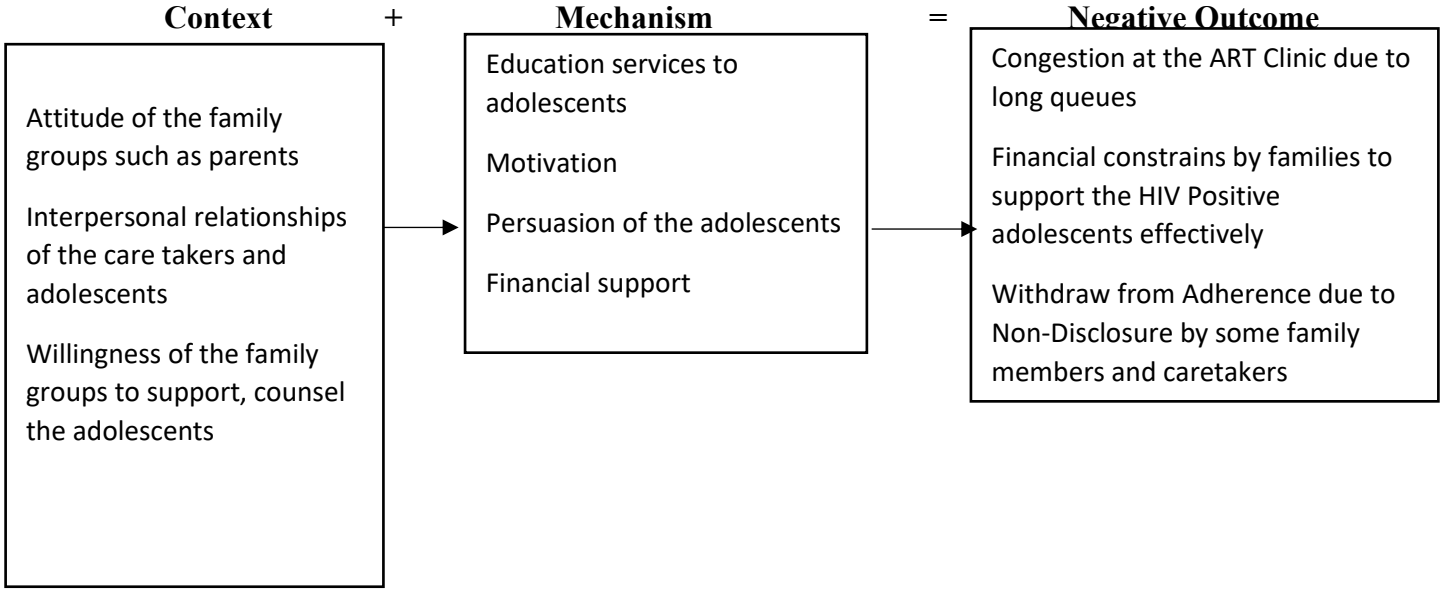
Figure 14: Family Support Groups



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CHAPTER FIVE: DISCUSSION OF THE FINDINGS, REFINED THEORY

5.0 Introduction

This chapter presents the discussions of the findings based on the objectives of the study, which include: Factors for Access to and use of ART services among HIV adolescents, Interventions for improving ART Adherence among adolescents, and Intervention outcomes to enhance ART Adherence among HIV Adolescents. It also entails the study conclusions and the refined Program Theory.

5.1.1 Contextual actors for access to and use of ART services among HIV Positive adolescents

The researcher established that there were different factors influencing the access and use of ART services among HIV positive adolescents. This aligns with earlier research indicating the value of comprehensive assistance in enhancing ART availability and adherence among adolescents. Atuhaire et al. (2021) and Odongo et al. (2023) highlighted the importance of government and NGO financing in maintaining continuous ART treatment delivery. Similarly, Campbell et al. (2020) and Maena et al. (2021) found that institutional preparedness, namely youth-friendly services and the availability of mobile outreach, significantly increases service adoption. This study highlighted the importance of hospital workers. Mbalinda et al. (2020) and Duru et al. (2020), similarly found that hospital-led capacity building and professional behavior encourage trust and participation among adolescents.

This study also adds to the findings of MacCarthy et al. (2018) and Sanga et al. (2019), who described technology as a two-edged sword—effective when available but difficult when budget or digital skills are limited. The integration of digital platforms and business abilities, as suggested by Owoko (2023) and Ferry et al. (2022), shows that adolescents' proactive attitudes have a significant impact on ART adherence. Community and institutional openness, verified by Antabe et al. (2023) and Armoon et al. (2021). The sustainability of mobile health treatments depended on cooperative adoption, which acted as a mechanism to boost ART adherence. This study's findings strongly confirm the supporting function of peer and family networks, which has been documented by Ajuna et al. (2021), Otieno (2023), and Muwanguzi et al. (2021).

Adolescents report that a secure, compassionate hospital atmosphere nurtures parental engagement as well as teenage participation in peer-led activities, which promotes mutual

accountability and emotional support. However, the study implies that these dynamics require further reinforcement, particularly in situations where stigma or caregiver disengagement persist—a worry shared by Mavhu et al. (2020) and Andersson et al. (2020). While physical availability is still critical, the researcher believes that psychological trust and community ownership are just as important for long-term ART adherence among adolescents. The research findings, therefore, indicate a move to multidimensional therapies that mix clinical, economic, technical, and relational tactics to reach adolescents where they are—socially, emotionally, and logistically.

5.1.2 Mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital

The study affirms that Mukono Hospital employs different mechanisms to improve ART adherence among HIV positive adolescents such as peer support, youth-friendly clinic days, and SMS reminders. The findings were in line with earlier research indicating the value of comprehensive assistance in enhancing ART availability and adherence among adolescents. Campbell et al. (2020) found that institutional preparedness, namely youth-friendly services and the availability of mobile outreach programs, significantly increases service adoption. This study highlighted the importance of hospital workers, as Mbalinda et al. (2020) and Duru et al. (2020) report, putting emphasis on how hospital-led capacity building and professional behavior encourage trust and participation among adolescents.

Digital platforms operated as a two-edged sword in this study, consistent with MacCarthy et al. (2018) and Sanga et al. (2019) Where adolescents had private phone access and basic digital literacy, SMS reminders and WhatsApp groups triggered a sense of ongoing support and reduced missed appointments. Where phones were shared with caregivers or literacy was low, the same platforms triggered anxiety about disclosure and were abandoned. Community and institutional openness also shaped adoption of mobile health interventions. In contexts where clinic staff and local leaders actively supported the program, adolescents were more willing to engage and sustain participation. This aligns with findings by Antabe et al (2023) and Armoon et al. (2021) The data did not support the claim by Owoko (2023) and Ferry et al. (2022) that "business abilities" directly improve ART adherence. Instead, proactive attitudes toward treatment were linked to peer support and prior positive experiences with clinic staff. Adolescents who reported supportive peer networks were more likely to adhere, even when digital access was limited.

This study's findings strongly confirm the supporting function of peer and family networks, which have been documented by Ajuna et al. (2021), Otieno (2023), and Muwanguzi et al. (2021). A secure, compassionate hospital atmosphere nurtures parental engagement as well as teenage participation in peer-led activities, which promotes mutual accountability and emotional support. However, the study implies that these dynamics require further reinforcement, particularly in situations where stigma or caregiver disengagement persist—a worry shared by Mavhu et al. (2020) and Andersson et al. (2020). While physical availability is still critical, the researcher believes that psychological trust and community ownership are just as important for long-term ART adherence among adolescents.

5.1.3 Outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital

The findings from Mukono General Hospital support the expanding body of evidence indicating that psychological empowerment and practical interventions greatly improve ART adherence among adolescents. The reported increase in self-efficacy and mental well-being is consistent with the findings of Laurenzi et al. (2021) and Steinert et al. (2022), who stress the value of personalized behavioral support and motivational tactics. Similarly, Quinn and Voisin (2020) found that when adolescents feel secure in managing their own treatment, adherence increases. The study's result that telemedicine has increased access supports Galárraga et al. (2020), who argue for integrating technology in resource-limited settings to bridge service gaps. More still, the study findings align with the postulations by Mutumba et al. (2022), having established that illiteracy and economic constraints limit the reach of technological treatments, which prevents certain adolescents from the benefits of digital health.

Furthermore, Mukono Hospital's economic empowerment initiatives mirror the success stories of Muiyuro (2020), who discovered that livelihood assistance programs not only address financial barriers but also strengthen treatment commitment. The growth in small adolescent-led firms is consistent with Adams et al. (2022) and Stringer et al. (2024), who argue that independence promotes long-term health accountability. Increased access through transportation subsidies also reflects Abuogi et al. (2023), whose studies indicate how physical proximity and cost mitigation strongly connect with higher clinic attendance and adherence

levels. Further, in light of the study findings, the postulations by Owoko (2023) were reflected in this study, having established that transportation infrastructure, while useful, has occasionally been a challenge limiting the adolescents' adherence to ART.

Nonetheless, the recurring constraints identified—such as insufficient finance, technology exclusion, and clinic congestion—are not novel, as noted by Sanga et al. (2019) and Armoon et al. (2021). These problems demonstrate that, while programs may be successful, their scalability and durability are limited by systemic constraints. Although Mukono Hospital has made impressive progress, the researcher believes that true change would need persistent investment, community literacy activities, and infrastructure renovations. The study echoed the assertions of Tozan et al. (2021), having revealed that insufficient financing at the hospital hampers the constant delivery of ART services, particularly those with high sustainability costs, such as mobile health programs, thus worsening the adherence footprint.

5.2 Conclusions

The following conclusions were derived from the study findings with respect to the specific objectives as presented below:

5.2.1 Factors for access to and use of ART services among HIV Positive adolescents

The first objective is to explore the factors for access to and use of ART services among HIV Positive adolescents. The findings indicated that access is determined by a complex interaction of institutional preparation, economic assistance, technology availability, and relational ties. As a result, it was determined that enhancing ART availability and adherence among adolescents required a multidimensional approach backed by community collaboration, family support and engagement, professional hospital settings, and adolescent empowerment to promote consistent and equitable treatment uptake.

5.2.2 Mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital

Secondly, the study examined the mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital. The results confirm that economic incentives to the adolescents, business skills training, education services, telemedicine services to the communities, persuasion of adolescents to adhere to ART, and motivation through awareness campaigns, are essential mechanisms for nurturing ART adherence among adolescents. As a result, it was determined that Mukono Hospital's multidimensional approach based on business skills training, provision of transport facilities, telemedicine services, public awareness,

persuasion of adolescents, education to the adolescents, and motivation to the adolescents, is critical to improving consistent ART uptake and long-term treatment effectiveness.

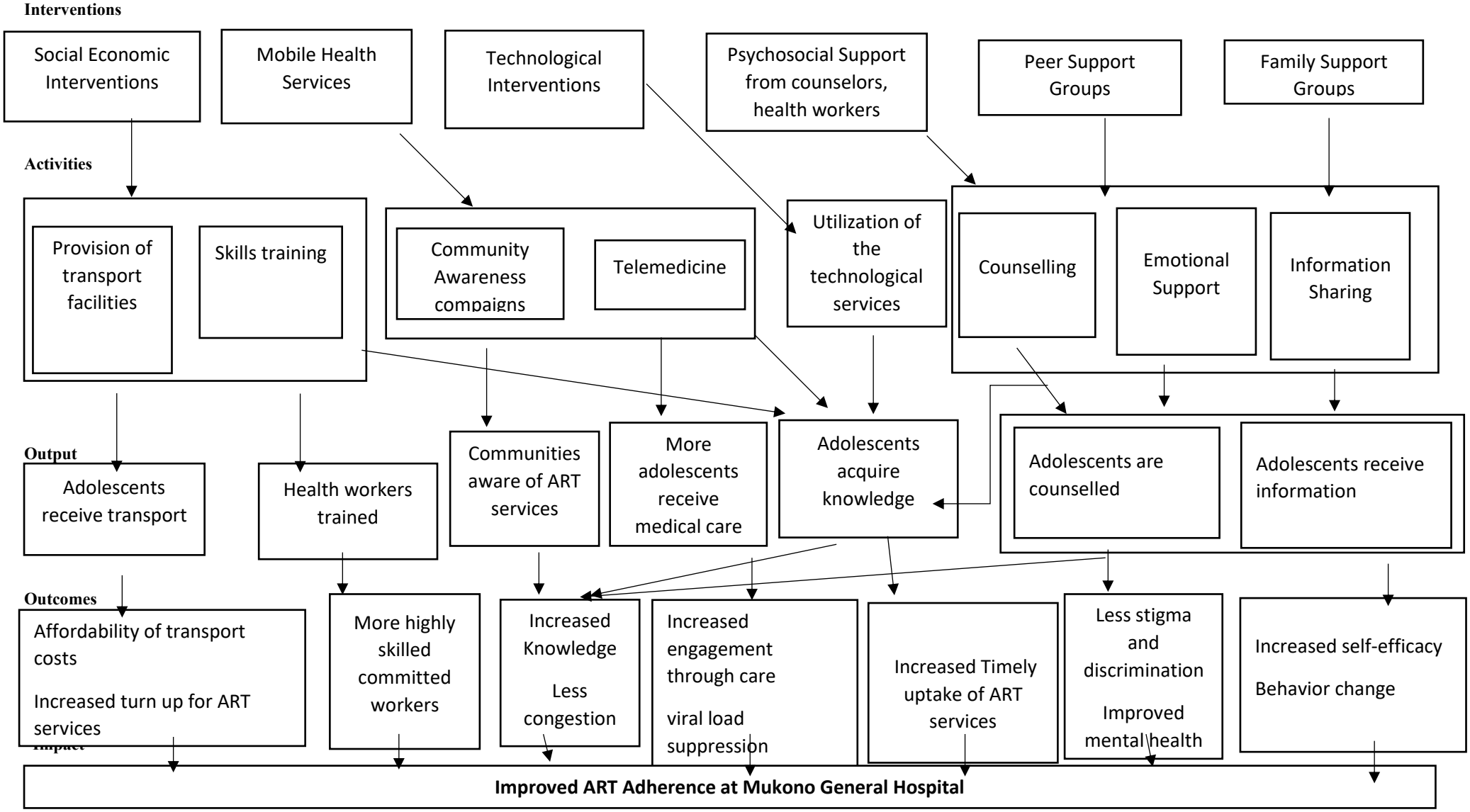
5.2.3 Outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital

Thirdly, the study assessed the outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital. From the study point of view, it was affirmed that the various mechanisms employed to enhance ART adherence among HIV positive adolescents were associated with the affordability of transport costs, business startups, short turnaround time, high service absorption rate, utilization of technological services, and increased self-efficacy. However, it was inferred that negative outcomes manifested such as misuse of the transportation facilities provided to adolescents, insufficient funds at the hospital to run all activities efficiently, expensive technological devices, and congestion at the ART Clinic due to positive ART, among others. Despite the negative outcomes yielded, the study findings incline to the positive outcomes, affirming that Mukono Hospital employs adolescent-centered initiatives in a bid to increase consistent ART uptake and long-term treatment success.

5.3 Refined Program theory for improving ART Adherence

The below illustration of the refined program theory is a broader and more detailed illustration stemming from the initial program theory in Fig. 2. It explicitly shows how the different interventions can bring about a positive or desired outcome.

Figure 15: Refined program Theory for improving ART Adherence among HIV Positive Adolescents



Assumptions

- The health center is well funded for capacity building and other medical requirements
- Community members' perceptions about ART adolescents are unbiased
- ART adolescents, medical workers, and community members have a positive attitude towards ART services
- Community members are cooperative, and their perceptions about ART adolescents are unbiased.
- Policies are supportive
- Health Care providers are available.
- Accessibility of remote and hard-to-reach areas.

The interventions are influenced by the contexts, such as the availability of funds to facilitate the ART services. The cases of adolescents not turning up for ART services due to poverty, which makes them not to afford transport services, will then be minimal. The availability of funds also necessitates capacity development at Mukono General Hospital by employing highly skilled personnel who can support the HIV positive adolescents through skills training, counselling, among others. This can only be possible if the hospital is well funded with sufficient funds to facilitate the adolescents through the provision of financial incentives, such as transport incentives, and there will be an increased turnout for ART services by the adolescents.

Another assumption is attitude. For example, if the adolescents have a positive attitude and are thus able and willing to learn and utilize the educational services provided through several interventions, such as the provision of mobile services, then there will be positive outcomes through reaching out to more adolescents who may need the ART services.

Other contexts for the ART adherence include the availability and affordability of the mobile health services, their durability, as well as the willingness of the adolescents to learn and utilize them. This is only possible if the adolescents are willing to learn, can afford to make use of the mobile health services, and then there will be increased ART adherence with more adolescents making use of the different technological devices, such as phone reminders, use of technological apps, among others, that lead to improved ART Adherence.

Capacity building through employing highly skilled personnel who are committed to their work and are unbiased at their job by treating the adolescents with patience, kindness and empathy, this will lead to increased turn up of adolescents seeking ART services because they trust the hospital workers and the good care they receive from the hospital because the personnel can counsel, motivate and as well as persuade them to make better choices as far as better adherence is concerned. An outcome such as this can be achieved if there is a positive attitude among the counselors, medical workers, and social workers at MGH.

Mobile health services include activities such as awareness campaigns that help communities become aware of ART services in communities. These include Mobile ART clinics, mobile testing centers, among others. This leads to more adolescents testing and seeking ART services, hence leading to less congestion at the health center. However, this can only be achieved if the community members are cooperative and willing to accept some of the ART programs, such as mobile health services, then there will be improved

Peer support groups help to guide, motivate, and counsel their fellow peer adolescents through role models who inspire them to make better ART practices and better health outcomes that lead to improved mental health, behavioral change, as well as improved self-efficacy. This is possible if adolescents are willing to mobilize themselves and form groups that such each other by motivating themselves to have better adherence by using role models who are in their same age brackets that inspire, motivate their peers, then there will be better adherence among the adolescents.

Family support groups exist through parents, guardians, as well as caregivers. These groups provide support to the HIV positive adolescents by proving support through motivating them, counselling, disclosing the status of the adolescents at an early age, making use of the technological devices such as reminders and providing extra support to the adolescents through provision of transport services to the hospital, providing them with a balanced diet, then there will be increased ART adherence, better quality of health and suppressed viral leads among the HIV positive adolescents. This is only possible if the family support groups are financially stable and willing to support such vulnerable populations.

CHAPTER SIX: POLICY IMPLICATIONS, CONCLUSIONS AND RECOMMENDATIONS, LIMITATIONS OF THE STUDY, AND AREAS FOR FURTHER RESEARCH

6.0 Policy Implications

The researcher drew policy measures to strengthen ART adherence and contribute to adolescents' autonomy and long-term health behavior change. These findings are represented at a National, facility, community, regional as well as stakeholder level as represented based on the context, mechanism and outcome approach as follows:

The study findings have substantial policy implications, arguing for a multi-sectoral and adolescent-centered approach to designing and delivering ART programs across Uganda. The policies must prioritize long-term finance mechanisms from both governments and donors to support not just in-facility services, but also mobile outreach and technology advancements. This thus includes funds set aside for digital health technologies, youth training programs, and clinic facilities designed for young people.

Additionally, Uganda's national adolescent ART guidelines and the National HIV Strategic Plan should formally integrate adolescent-responsive service delivery standards, disaggregated monitoring for ages 13-19, and mechanisms for low-cost digital reminders and caregiver engagement into routine care. Mukono General Hospital should establish an adolescent-friendly space and flexible appointment systems to reduce stigma, clinic overload, and scheduling conflicts with the adolescents in Boarding school. Mukono General Hospital should endeavor to train staff in youth-centered communication and technical ART care to build trust and continuity of treatment with adolescents as well as operationalize peer educators and feedback channels.

Policy frameworks should also prioritize community engagement and institutional readiness, especially empowering hospitals to construct adolescent-responsive settings and equipping their personnel with both technical and interpersonal abilities that encourage trust and continuity of treatment. This would reciprocate into high absorption and adherence of ART services among HIV positive adolescents not only at Mukono Hospital but also those across the country.

The study emphasizes the significance of inclusive access and service innovation, arguing for legislative initiatives that promote telemedicine growth, caregiver participation, and community-led feedback channels. From the dearth of study findings, the regulatory frameworks must address issues including digital exclusion, health professional shortages, and clinic overload. This might include implementing adolescent-specific appointment systems, investing in low-bandwidth telehealth solutions, and forming public-private partnerships to fund connection and equipment.

Further, the foundation of the study findings suggests that the government of Uganda, through the MoH, must encourage a coordinated, adolescent-friendly ART ecosystem that fosters adherence not just via treatment availability, but also by empowering them to take ownership of their health in a supportive, stigma-free setting.

The findings also emphasize the need to include economic empowerment and education programs in national HIV response efforts targeting HIV positive adolescents. This would include legislative incentives for vocational training, business mentorship, and transportation assistance programs, which would be used as measures for reducing economic stress while increasing adolescents' self-efficacy in managing their treatment.

It was further highlighted that incorporating health education into both formal education and community outreach is critical. Health policies should require the implementation of health literacy programs and adolescent-centered counseling services provided via culturally relevant and emotionally resonant channels, such as peer educators and internet platforms.

Stake holders such as research institutions, Policy makers and researchers should strengthen training in more qualitative and realist evaluation methods to equip researchers to uncover the mechanisms and contexts shaping adolescent ART adherence. There should be institutional review boards and updated ethical guidelines to address trauma-informed consent, confidentiality, and participation standards for vulnerable adolescents. Finally, investment in training for rigorous qualitative analysis, including software use and trustworthiness practices, to enhance the credibility and uptake of the research.

6.1 Conclusions

The following conclusions were derived from the study findings concerning the specific objectives as presented below:

6.1.1 Factors for access to and use of ART services among HIV Positive adolescents

The first objective is to explore the factors for access to and use of ART services among HIV Positive adolescents. The findings indicated that access is determined by a complex interaction of institutional preparation, economic assistance, technology availability, and relational ties. As a result, it was determined that enhancing ART availability and adherence among adolescents required a multidimensional approach backed by community collaboration, family engagement, professional hospital settings, and adolescent empowerment to promote consistent and equitable treatment uptake.

6.1.2 Mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital

Secondly, the study examined the mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital. The results confirm that economic incentives to the adolescents, business skills training, education services, telemedicine services to the communities, persuasion of adolescents to adhere to ART, and motivation through awareness campaigns are essential mechanisms for nurturing ART adherence among adolescents. As a result, it was determined that Mukono Hospital's multidimensional approach based on business skills training, provision of transport facilities, telemedicine services, public awareness, persuasion of adolescents, education to the adolescents, and motivation to the adolescents, is critical to improving consistent ART uptake and long-term treatment effectiveness.

6.1.3 Outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital

Thirdly, the study assessed the outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital. From the study point of view, it was affirmed that the various mechanisms employed to enhance ART adherence among HIV positive adolescents were associated with the affordability of transport costs, business startups, short turnaround time, high service absorption rate, utilization of technological services, and increased self-efficacy. However, it was inferred that negative outcomes manifested, such as misuse of the transportation facilities provided to adolescents, insufficient funds at the hospital to run all activities efficiently, expensive technological devices, and congestion at the ART

Clinic due to positive ART, among others. Despite the negative outcomes yielded, the study findings incline to the positive outcomes, affirming that Mukono Hospital employs adolescent-centered initiatives in a bid to increase consistent ART uptake and long-term treatment success.

6.2 Recommendations

In this subsection, the recommendations are presented in alignment with the study objectives as listed below:

6.2.1 Factors for access to and use of ART services among HIV Positive adolescents

i) Key stakeholders such as government and NGOs should strengthen socioeconomic empowerment initiatives by guaranteeing constant financing to promote skill-building and income-generating activities that improve adolescent self-efficacy and eliminate financial obstacles to receiving ART treatments.

ii) There is a need for the government and mobile subscribers to subsidize and expand adolescent-friendly digital technologies (such as mobile applications) in collaboration with donors to supply durable and cheap devices, while educating both users and caregivers for successful use in ART adherence support.

iii) Mukono Hospital and its partners should facilitate the establishment of peer support networks within youth-friendly corners or clinics by offering safe places, mentoring programs, and startup tools to stimulate mutual support, learning, and ART adherence among HIV positive adolescents.

iv) There is a need for Mukono Hospital and other implementing partners to increase community support for mobile health services by including hospital managers, local leaders, and community institutions in co-creating outreach schedules and mobilization strategies, encouraging ownership and acceptability of mobile ART delivery platforms.

v) The MoH together with partners in HIV/AIDS service delivery should train ART clinic personnel in adolescent-centered care practices, such as nonjudgmental counseling and therapeutic communication, to promote trust and continuity in ART therapy.

vi) The health providers should encourage family-inclusive interventions that involve parents and guardians in support groups, counseling sessions, and awareness campaigns to nurture a loving atmosphere that encourages adherence and long-term care continuity.

6.2.2 Mechanisms aimed at improving ART adherence among HIV Positive adolescents at Mukono General Hospital

i) Mukono Hospital and its partners should integrate economic incentives into ART adherence objectives by giving transportation allowances or adherence-based stipends connected to clinic attendance, as a token to enhance retention and lower cost-related obstacles to access to ART services among HIV positive adolescents.
ii) Mukono Hospital together with other implementing partners should establish business skills training and mentorship programs that empower adolescents with economic self-reliance, increasing their confidence and long-term involvement with health services.
iii) Health providers should deliver targeted education services using youth-friendly approaches, such as school outreach, peer-led workshops, and mobile learning platforms, to raise knowledge of the relevance of ART and refute misconceptions that affect adherence practices.
iv) The MoH should collaborate with telecommunication companies to expand telemedicine services to provide follow-up consultations, reminders, and counseling sessions remotely, improving accessibility for teenagers in hard-to-reach places.
v) There is a need for implementing partners and peer support groups to provide constant emotional and financial support through community-based empowerment groups and caregiver engagement, providing a solid support structure that underscores the need of treatment adherence among HIV positive adolescents.
vi) Mukono Hospital and its implementing partners should create compelling, adolescent-focused advertising that leverage realistic narrative, role models, and peer ambassadors to encourage consistent ART usage and battle stigma.

6.2.3 Outcomes of the mechanisms aimed at ART Adherence among HIV Positive adolescents at Mukono General Hospital

i) Health providers at Mukono Hospital should improve coordination and scheduling mechanisms to alleviate clinic congestion induced by higher teen turnout by staggering appointments, increasing clinic hours, or adolescent-only ART days to reduce wait times, as avenues for improving health outcomes associated with ART adherence among HIV positive adolescents.
ii) There is a need to encourage adolescents to use inexpensive transportation means with accountability checks to guarantee fair access while limiting misuse.
iii) There is a need for MoH and its partners to institutionalize sustainable funding streams by building public-private partnerships, organizing donor support, and lobbying for

budget prioritization at the district and national levels as prerequisites for facilitating ART adherence practices among HIV positive adolescents.

iv) Mukono Hospital and its partners should endeavor to incorporate entrepreneurial mentorship into ART support programs to strengthen sustainability by cultivating adolescent-run establishments that enhance confidence, self-efficacy, and financial independence.

v) The ART clinic should increase digital health literacy initiatives to overcome gadget usability and availability barriers by providing basic ICT training, access to affordable gadgets, and the use of SMS-based reminders for medication adherence.

vi) There is a need for Mukono Hospital to establish private counseling rooms and caregiver sensitization sessions to decrease non-disclosure difficulties and increase treatment continuity at home.

vii) There is need for the policy makers to revisit the existing adherence programs by coming up with evidence based practical solutions that can strengthen adherence at Mukono General hospital such as calling for more training of the health workers, revising the communication platforms of the adolescents to the ones that are more appealing, revising to the routine medical visits and making by making them more engaging in order to have better health outcomes among HIV Positive adolescents.

6.4 Limitations of the study

The study employed a grounded theory study design, which involved collecting information, analyzing it, and then developing hypotheses based on real-life context approaches. This approach can be time-consuming and difficult to assess, particularly when dealing with significant amounts of qualitative data without a specified framework. A longitudinal study would be required to adequately evaluate interventions for enhancing ART adherence among HIV positive adolescents at Mukono General Hospital.

Furthermore, the research excluded previous and later eras, instead focusing on data from 2019 to 2024. Including data over a longer period of time can aid in uncovering shifting trends of interventions for promoting ART adherence among HIV positive adolescents, offering a deeper understanding of the long-term durability of these programs.

The study focused on only Mukono Hospital. however, including a wider spectrum of health facilities and service providers would generate a more complete knowledge base of the interventions for improving ART adherence among HIV Positive adolescents.

6.5 Areas for further research

i) There is a need to evaluate the impact of clinic congestion on adolescent ART adherence as based on the considerable rise in their participation, necessitating further research to determine how congestion at ART clinics, as manifested by long lineups, limited consultation time, and service fatigue, affects care quality and treatment adherence. The study might investigate how congestion effects adolescents' happiness, missed appointments, or default rates, and offer operational redesigns to optimize throughput and service experience in ART service provision.

ii)A study on how financial constraints relate to family support and ART continuity is highly desired. This study would look at how financial constraints among caregivers impact their ability to support adolescents in their efforts to adhere to ART. This investigation would explore how transportation, nourishment, emotional support influence frequent clinic attendance. It might also investigate differences between rural and urban households and evaluate community-based financial support methods to increase treatment continuity among HIV positive adolescents.

iii) An in-depth investigation into the impact of low digital literacy and device accessibility on technological interventions in ART services is required. Given that technology tools are being utilized to assess ART adherence (such as SMS reminders, virtual counseling), it is critical to investigate how their application influences their adherence to ART. This investigate might look into the usability, reach, and equality of such technologies while providing inclusive, low-tech alternatives for marginalized adolescent groups that are most at risk of being excluded from ART programs.

iv) The study also highlights the need to investigate the effect of family nondisclosure on treatment adherence and mental health outcomes. Non-disclosure of HIV status among families is still a hidden obstacle to teenage ART success, which necessitates a deep inquiry into how this concealment influences self-esteem, medication secrecy, and adherence habits. This investigation may also examine the impact of stigma, caregiver anxiety, and cultural norms in disclosure dynamics and offer interventions, including, though not limited to, family therapy or culturally sensitive disclosure protocols.

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APPENDICES

APPENDIX 1. INDEPTH INTERVIEWS WITH POSITIVE ADOLESCENTS

Hello, my name is Innocent Kabagenyi a student at Uganda Christian University. I am conducting a study on Interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. This is part of my Research thesis for a master's degree qualification.

The information to be shared is highly confidential and I guarantee your privacy during this study and after. You are free to answer any of the questions and also free not to answer some questions that you may feel you are not comfortable answering. You are at liberty to stop answering the questions whenever you feel like.

1. Do you agree to take part in this study?

   Section1

   Demographic Characteristics

2. Gender
3. Age?

Geographical Location

4. Area of residence. Village and sub county.
5. How did you discover your HIV status?
6. What motivated you to start receiving ART medication?

7. **Section 2**
8. **Stigma and Discrimination**

9. How were you treated when you first came to receive medication at Mukono General Hospital? Prob question
10. Were you motivated you to come back for treatment or not? Please explain.

Section 3

Self-Efficacy

11. How do you feel when you miss out on taking your medication?
12. Explain to me some of the actions you have taken to ensure that you take your drugs daily.

Objective 1

Factors for Access and Use of ART Services

13. What do you think are some of the factors that lead to proper use and access of ART services? Explain more about ART.

Objective 2

Mechanisms for Improving ART Adherence among HIV Positive Adolescents

14. Briefly explain to me some of the challenges faced by adolescents using ART services among adolescents at Mukono General Hospital.

Objective 3

Outcomes of the Mechanisms aimed at ART Adherence among HIV Positive adolescents.

15. What do you think are the positive consequences outcomes for proper ART adherence among HIV Positive adolescents at Mukono General Hospital?

Section 4

Government Role and other Non-Government Organizations in support of ART

16. Do you think the government and other Non-Governmental Organizations have done enough to promote adherence among HIV Positive adolescents at Mukono General Hospital? Please explain.

17. Some activities that help improve ART adherence include Community Outreach programs, educational workshops on ART services, and Mobile Health services. Have you heard about these activities? If yes, what impact have they had on you as far as ART Adherence is concerned?

17. What recommendations or advice for improvement of ART Adherence in the following categories?

- Service providers
- Caretakers

APPENDIX 2. KEY INFORMANT INTERVIEWS WITH PARENTS/ CARETAKERS

Hello, my name is Innocent Kabagenyi a student at Uganda Christian University. I am conducting a study on Interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. This is part of my Research thesis for a master's degree qualification.

The information to be shared is highly confidential and I guarantee your privacy during this study and after. You are free to answer any of the questions and also free not to answer some questions that you may feel you are not comfortable answering. You are at liberty to stop answering the questions whenever you feel like.

1. Do you agree to take part in this study?

Demographic Characteristics

Section1

Gender

1. Age?

Section2

Level of education

2. Education level?

Section 3

3. Occupation

Section 4

Geographical Location

4. Area of residence. Village and Sub- County.

Section 5

HIV Awareness and Disclosure

5. Is your son/daughter/ niece/friend/nephew sibling aware of their HIV status?
6. If no, do you plan on disclosing his or her HIV status to them?
7. When did the person under your care start receiving ART services?

8. Are there days your daughter/ niece, friend, nephew sibling, or son has missed taking their ART drugs? Please explain what led them to miss their drugs.

Section 6

9. What are some of the strategies that you have taken to ensure that your daughter/one/ niece/friend/ nephew sibling does not miss taking their daily ART drugs?
10. One of the strategies for proper adherence to ART Adherence is proper diet. What dietary measures have you put in place for proper diet for your daughter/one/ niece/friend/ nephew sibling?
11. Briefly explain to me some of the challenges faced by adolescents using ART services among adolescents at Mukono General Hospital.

Objective 1

12. What do you think are the strategies that lead to the use and access of ART services?

Objective 2

Mechanisms for Improving ART Adherence among HIV Positive adolescents

13. Briefly explain to me some of the challenges faced by adolescents using ART services among adolescents at Mukono General Hospital.

Objective 3

Outcomes of the Mechanisms aimed at ART Adherence among HIV Positive adolescents.

14. What do you think are the positive consequences outcomes for proper ART adherence among HIV Positive adolescents?
15. (a) Do you think the government and other Non-Governmental Organizations have done enough to promote adherence among HIV Positive adolescents at Mukono General Hospital? Please explain.
16. Some of the activities that help to improve ART adherence include Community Outreach programs, educational workshops on ART services and Mobile Health services. Have you heard about these activities? If yes, what impact have they had on you and the person under your care?

17. What recommendations or advice for improvement of ART Adherence in the following categories?

- Service providers

- Caretakers
- Adolescents

APPENDIX 3: KEY INFORMANT INTERVIEWS WITH THE ART CLINICAL OFFICERS, AND COUNSELLORS

Hello, my name is Innocent Kabagenyi a student at Uganda Christian University. I am conducting a study on Interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. This is part of my Research thesis for a master's degree qualification.

The information to be shared is highly confidential and I guarantee your privacy during this study and after. You are free to answer any of the questions and also free not to answer some questions that you may feel you are not comfortable answering. You are at liberty to stop answering the questions whenever you feel like.

Do you agree to take part in this study?

Demographic Characteristics

1. **Section 1**
2. Gender
   Section 2
   Age

   Section 3

   Occupation

3. What is your job title at Mukono General Hospital?
4. What are the causes of HIV transmission among HIV Positive adolescents at Mukono General Hospital/?

   Objective 1
5. What do you think are the strategies that lead to the use and access of ART services?

Objective 2

Mechanisms for Improving ART Adherence among HIV Positive adolescents

6. Briefly explain to me some of the challenges faced by adolescents using ART services among adolescents at Mukono General Hospital.

Objective 3

Outcomes of the Mechanisms aimed at ART Adherence among HIV Positive adolescents.

7. What do you think are the positive consequences outcomes for proper ART adherence among HIV Positive adolescents?
8. How effective have the community outreaches, educational programs and mobile Health Services helped to improve ART adherence among HIV Positive adolescents at Mukono General Hospital?
9. What challenges do you experience while providing care to the Positive Adolescents using ART Services? How do you handle such challenges?
10. As a medical personnel/counselor/VHT, Local leader what strategies have you put in place to ensure proper adherence among HIV Positive adolescents in Mukono district?
11. Some of the activities that help to improve ART adherence include Community Outreach programs, educational workshops on ART services and Mobile Health services. Have you heard about these activities? If yes, what impact have they had on you?

12. In your perspective as a medical personnel/counselor/VHTS, what recommendations or advice for improvement of ART Adherence in the following categories?

- Service providers
- Caretakers
- Adolescents

APPENDIX 4: FOCUSED GROUP DISCUSSIONS GUIDE

Hello, my name is Innocent Kabagenyi, a student at Uganda Christian University. I am conducting a study on Interventions for improving ART adherence among HIV Positive adolescents at Mukono General Hospital. This is part of my Research thesis for a master's degree qualification.

The information to be shared is highly confidential, and I guarantee your privacy during this study and after. You are free to answer any of the questions, and also free not to answer some questions that you may feel you are not comfortable answering. You are at liberty to stop answering the questions whenever you feel like.

1. Do you all agree to take part in this study?

Section1

Gender (Male/ Female) Tick Category

(To have different sessions of Focused group discussions with Male and Female genders separately)

Geographical Location

2. Area of residence. Village and sub-county.

Section 2

3. How did you discover your HIV status?
4. What motivated you to start receiving ART medication?

Section 2

5. Stigma and Discrimination

6. How were you treated when you first came to receive medication at Mukono General Hospital? Prob question
7. Were you motivated you to come back for treatment or not? Please explain.

Section 3

Self-Efficacy

8. How do you feel when you miss out on taking your medication?
9. Please explain to me some of the actions you have taken to ensure that you take your drugs daily?

Objective 1

Factors for Access and Use of ART Services

10. What do you think are some of the factors that lead to the proper use and access of ART services? Explain more about ART.

Objective 2

Mechanisms for Improving ART Adherence among HIV Positive adolescents

11. Briefly explain to me some of the challenges faced by adolescents using ART services among adolescents at Mukono General Hospital.

Objective 3

Outcomes of the Mechanisms aimed at ART Adherence among HIV Positive adolescents.

12. What do you think are the positive consequences outcomes for proper ART adherence among HIV Positive adolescents at Mukono General Hospital?

Section 4

Government Role and other Non-Government Organizations in support of ART

13. (a)Do you think the government and other Non-Governmental Organizations have done enough to promote adherence among HIV Positive adolescents at Mukono General Hospital? Please explain.

(b) If no, what can be done to promote better Adherence among HIV Positive adolescents at Mukono General Hospital?

14. Some of the activities that help to improve ART adherence include Community Outreach programs, educational workshops on ART services and Mobile Health services. Have you heard about these activities? If yes, what impact have they had on you?

15. What recommendations or advice for improvement of ART Adherence in the following categories?

- Service providers
- Caretakers
- Adolescents

APPENDIX 5: INFORMED CONSENT FORM

UGANDA CHRISTIAN UNIVERSITY

INFORMED CONSENT FORM FOR HIV POSITIVE ADOLESCENTS ABOVE 18 YEARS

Investigator: Innocent Kabagenyi

Study Title: Evaluating interventions for improving ART Adherence among HIV positive adolescents at Mukono General Hospital.

Introduction: My name is Innocent Kabagenyi a student at Uganda Christian University and I am a student at Uganda Christian University currently pursuing my Master's degree in Monitoring and Evaluation. This study aims to fulfill my thesis for a Master's degree qualification. I'm kindly inviting you to participate in the study aimed at Evaluating interventions for improving ART adherence at Mukono General Hospital. This is a qualitative study that seeks to gather experiences from HIV positive adolescents regarding their adherence by use of a qualitative methods approach. This study is participatory and it seeks to understand the circumstances and challenges that the teenagers at Mukono face in their day-to-day adherence journey. This information will enable the teenagers to fully engage in the study by expressing themselves as far as ART adherence is concerned.

This interview will take 25 -30 minutes. Your confidentiality will be highly guaranteed. Please note that this information will be recorded for purposes of data transcription. You are free to read this entire document and ask any questions where necessary before signing this document.

Purpose: The purpose of this research is to evaluate interventions for improving ART adherence among HIV positive adolescents at Mukono General Hospital. You will be provided with semi-structured interview questions by the researcher. The questions in this interview will include your experiences as an HIV positive adolescent for using ART services at Mukono General Hospital. The information provided may be used by the medical fraternity, and hospitals to improve general practices in as far as ART adherence among adolescents is concerned, it may also be used for policy making to make better interventions and by academia for further studies.

Procedures: You will be provided with an informed consent form by the researcher. The questions asked in this study are semi-structured. As earlier mentioned, this interview will be recorded. A code will therefore be used to identify your response. This therefore means that your name will not be used in any of the record labels of the audio or transcription of the interview.

Risks to participation: Please note that you are not being coerced or forced to participate in this study. Therefore, some of the questions asked may be very sensitive and therefore may be hard or cause discomfort to answer. For this matter, you are therefore free to ask any questions where necessary and also free to choose not to answer some questions. You are also free to stop the interview whenever you wish.

Benefits to participants: You may not be of direct benefit in this study. Albeit the benefit may be indirect since the information provided may be used by the medical fraternity, and hospitals to improve general practices in as far as ART adherence among adolescents is concerned, it

may also be used for policy making to make better interventions and by academia for further studies.

Confidentiality: The information shared will be reviewed, stored, and analyzed at Uganda Christian University. The confidentiality of the recorded information will be locked away in a safe file at the university. While traveling, information will not be left in the car or leave the researcher's side. All research materials will be kept for a period of Five years as guided by APA standard guidelines. This information may be used in the future for research or distributed to another researcher without your consent. However, information that could identify you in any way will be removed**.** The research records may be reviewed by the Research Ethics Committee (REC) of Uganda Christian University under the Department of Social Sciences.

Incentives: The findings from this study may be used directly by different stakeholders such as hospitals, and policymakers, and the information provided in the study. However, your benefit to this study will be through the provision of better ART services to HIV Positive adolescents. This information will therefore be used as an incentive for a guide to the study hence no compensation in the form of financial or other material benefits will be given to the participants in this study.

Questions or concerns: In case of any questions or concerns related to this study, please reach out to me by email: at kabagenyii90@gmail.com or by direct phone contact 0776 525378. You can also contact my dissertation supervisor, Mr. Solomon Mwije by email at smije@ucu.ac.ug or by phone contact 0772 049094

If you have concerns regarding your rights in the research study you may contact the Research Ethics Committee (REC) which is concerned with the protection of the subjects in the research project. The research office is open during Weekdays (Monday to Friday) or may be contacted on 0312 350885 or the secretariat at 0775 737326 or email rec@graduate.ucu.ac.ug or writing: Research Ethical Committee, Uganda Christian University P.O. Box 4, Mukono, Uganda.

Consent to participate in research:

'I have read and clearly understood the above information. I agree to participate in this study. You may choose to participate or discontinue to do so whenever I feel like.'

Participants Name……..……Signature…… Date……

Investigator's Signature ……Date……

Ekyonderezeddwako Ekisoka

Ennyanjula

Ebikwata Ku Bavubuka Abawangaala Ne Mukanenya.

Mbalamusiza nyo erinya lyange nze Innocent kabagenyi Omuyizi ku Uganda Christian UniversityNdi Mukunonyereza ku ngeri jjetusobola Okwagazisa Abavubuka okuwangaala ne mukenenya Okujumbila Obujjanjambi bwa ART e Mukono General Hospital.

Okunonyereza kuno kyekimu kubisanizo okusobola Okwongerayo Emisomo jjange ku digirieyokubiri.

Okunonyereza kuno was kyaama nyo era blue ekyogedwa kisigala wakati wange naawe. Oliwa Ddembe Okwanukula ekibuuzo kyona oba Obutayanukula

Era bwowulira nga Tewandiyagedde kwogera kubintu ebimu Oliwa Ddembe Okukileka.

Wandiyagadde okwetaba naffe mukononyereza kuno?

Ekitundu Ekisooka

1. Ebikwaata ku Ngeri Z'obungi bw'abantu
2. Obutonde
3. Emyaaka Ekifo Jjobeera
4. Jjosibuka, Ekyaalo, Egombolola
5. Wategerera otya nti olina Mukenenya?
6. Kiki Ekyakusikiriza Okufuna Obujjanjabi bwa ART?

Ekitundu Ekyokubiri

7. Okuvumwavuma N'okusosolwa
8. Wayisibwa Otya Wewasooka Okujja Okufuna Obujjanjabi e Mukono General Hospital?
9. Wasikirizibwa Okudda Ofune Obujjanjabi?

Ekitundu Ekyokusatu

Okwekiririzaamu

10. Owulira otya nga tomize Mize Ddagala Lyo?
11. Kikikyonkola ngo'muvubuka Ekikuyambya Okusobola Okumila Eddagala lyo mubudde?

OMULAMWA OGUSOKA

Byetwetaaga Okufuna Obujjanjabi bwa ART

12. Kiki kyetuyinza okola Okusobozesa Obujjanjabi bwa ART okutuuka ku bantu?

OMULAMWA OGWOKUBIRI

Tukoze tutya Okutumbula Obujjanjabi bwa ART mubavubuka Abalina Mukenenya?

13. Kusomoozaki Abavubuka Abalina Mukenenya kwebasanze Mukufuna Obujjanjabi bwa ART eMukono General Hospital?

OMULAMWA OGWOKUSATU

Ebivva Mu Kujjumbila Okozesa Obujjanjabi Bwa ART Mubalina Mukenenya?

14. Biki Ebiyinza Okuva Mubujjumbize Mu Kozesa Obujjanjabi bwa ART e Mukono GeneralHospital?

15. Kusomoozaki Abavubuka Abalina Mukenenya kwebasanze Mukufuna Obujjanjabi bwa ART eMukono General Hospital?

Ebivva Mu Kujjumbila Okozesa Obujjanjabi Bwa ART Mubalina Mukenenya?

16. Biki Ebiyinza Okuva Mubujjumbize Mu Kozesa Obujjanjabi bwa ART e Mukono GeneralHospital?

EKITUNDU KYOKUNA

17. Gavumenti n'ebitongole byabanakyeewa Basobodde batya Okuyamba ku bujjanjabi bwa ART 16. Olowooza Gavumenti n'ebitongole byabanakyeewa bakoze ekimala Okutumbula Obujjanjabibwa ART e Mukono General Hospital?
18. Ebimu kubisobola Okutumbula Obujjanjabi bwa Obujjanjabi bwa ART e Mukono GeneralHospital

Mulimu;

Okutuuka mu bantu, Emisomo ku nkolaza ART, Obujjanjabi bwa buliwendi nkufuna.

-Wali Owulidde kubuwereza obwo' bwogedwaako?

-Bwakuyamba butya?

19. Kiki kyolowooza ekyandi koledwa okutumbuula Obujjanjabi bwa ART mu mitendera jjinowamanga;

•Empereza

•Abalabilira

• Abavubuka

Ekyongerezeddwako Ekyokubiri

Okwebuzako ko Bazadde Nabalabirizi babavubuka abawangala ne Mukenenya

Ebikwata Ku Bavubuka Abawangaala Ne Mukanenya.

Mbalamusiza nyo erinya lyange nze Innocent kabagenyi Omuyizi ku Uganda Christian University Ndi Mukunonyereza ku ngeri jjetusobola Okwagazisa Abavubuka Abawangaala ne mukenenya Okujumbila Obujjanjambi bwa ART e Mukono General Hospital.

Okunonyereza kuno kyekimu kubisanizo okusobola Okwongerayo Emisomo jjange ku digirieyokubiri.

Okunonyereza kuno kwa kyaama nyo era buli ekyogedwa kisigala wakati wange naawe. Oliwa Ddembe Okwanukula ekibuuzo kyona oba Obutayanukula

Era bwowulira nga tewandiyagedde kwogera kubintu ebimu Oliwa Ddembe

Okukileka.

Wandiyagadde okwetaba naffe mukononyereza kuno?

EKITUNDU EKISOOKA

Ebikwaata ku Ngeri Z'obungi bw'abantu
Emyaka?

EKITUNDU EYOKUBIRI

2. Ebikwata kuku Ssomakwo

EKITUNDU EKYOKUSATU

3. Omulimu gwokola

EKITUNDU EKYOKUNA

Ekifo Jjobeera

4. Jjosibuka, Ekyaalo, Egombolola

EKITUNDU EKYOKUTAANO

Okumanyisa Ku Mukenenya

5. Mutabaniwo muwalawo amanyi nti alina Mukenenya?
6. Bwekiba nti tamanyi, olina esubbi lyona omukumumanyisa nti alina mukenenya?

Wali wabadeyo olunaku Omukubantubo Bweyasobubwa Okozesa edagala lya ART? Nsaba okunyonyolako.

EKITUNDU EYOMUKAAGA

8. Osaze Magezi ki Okulaba Nga Omuntuwo Ttadamu kusubwa Kumila Ddagala?
9. Ezzimu kumpeenda Kwekusobola okozesa obulungi Obujjanjabi oba eddagala lya ART eri EndyaEnungi,

Okoze otya okuyamba omulwadewo okufuna Endya enungi?

10. Osobola Okunyonyola Okusomozebwa Abavubuka kwebayitamu mu kozesa Obujjanjabi bwa ART e Mukono General Hospital?

OMULAMWA OGUSOKA

11. Kiki Ekivaako Abavubuka Okozesa Obubi Eddagala oba Obujjanjabi bwa ART?

OMULAMWA OGWOKUBIRI

12. Tulongoseza Tutya Enkozesa Ya Obujjanjabi bwa ART Mu Bavubuka Abalina Mukenenya?
13. 13.Mubufunze tunyonyolemu kuku Ssomozebwa Abavubuka Abalina Mukenenya kwebasanze mukufuna Obujjanjabi bwa ART e Mukono General Hospital?

OMULAMWA OGWOKUSATU

14. Ebinaava Mu Nkozesa Enungi Eya ART Mu Bavubuka Abalina Mukenenya

EKITUNDU EKYOMUSANVU

15.Olowooza kiki Ekiyinza Okuva Munkozesa Enungi Eyobujjanjabi bwa ART Mubavubuka?16.Olowooza Gavumenti be'bitongole Eby'obwanakyeewa bakoze ekimala Okutumbula Obujjanjabi Bwa ART Mubavubuka e Mukono General Hospital? Nyonyola…!

17. Ebimu kubisobola Okutumbula Obujjanjabi bwa Obujjanjabi bwa ART e Mukono GeneralHospital

Mulimu;

Okutuuka mu bantu, Emisomo ku nkolaza ART, Obujjanjabi bwa buliwendi nkufuna.

-Wali Owulidde kubuwereza obwo' bwogedwaako?

-Bwakuyamba butya?

18. Kiki kyolowooza ekyandi koledwa okutumbuula Obujjanjabi bwa ART mu mitendera jjinowamanga;

•Empereza

•Abalabilira

• Abavubuka

Ekyonderezeddwako Ekyokusatu

Okwebuzako ku musawo, Omubudabuzi wedwaliro lya Mukono General Hospital

Ebikwata Ku Bavubuka Abawangaala Ne Mukanenya.
Mbalamusiza nyo erinya lyange nze Innocent kabagenyi Omuyizi ku Uganda Christian University Ndi Mukunonyereza ku ngeri jjetusobola Okwagazisa Abavubuka Abawangaala ne mukenenya Okujumbila Obujjanjambi bwa ART e Mukono General Hospital.
Okunonyereza kuno kyekimu kubisanizo okusobola Okwongerayo Emisomo jjange ku digirieyokubiri.

Okunonyereza kuno kwa kyaama nyo era buli ekyogedwa kisigala wakati wange naawe. Oliwa Ddembe Okwanukula ekibuuzo kyona oba Obutayanukula
Era bwowulira nga tewandiyagedde kwogera kubintu ebimu Oliwa Ddembe

Okukileka.

Wandiyagadde okwetaba naffe mukononyereza kuno?

Ebikwaata ku Ngeri Z'obungi bw'abantu

EKITUNDU EKISOOKA
Obutonde

E K I T U N D U EKYOKUBIRI

Emyaaka

EKITUNDU EYOKUSATU

1. Omulimu gwokola
Okola Mulimuki ku Mukono General Hospital?
2. Kiki Eretedde Mukenenya Okweyongera Mu Bavubuka e Mukono General Hospital?

OMULAMWA OGUSOKA

3. Tuyinza kola tutya okutumbula Okozesa Obujjanjabi bwa ART

OMULAMWA OGWOKUBIRI

Ebbiva Mu Nkozesa Enungi Eya ART Mu Bavubuka Abalina Mukenenya

7.Olowooza kiki Ekiyinza Okuva Munkozesa Enungi Eya Obujjanjabi bwa ART Mubavubuka?

OMULAMWA OGWOKUSATU

8.Olowoza Okutukira Abantu, Okusomesa Abantu, N'obujjanjabi Obwa Buli

Wendi NkufunaBuyambyeeko Okutuusa Obujjanjabi Bwa ART Eri Abavubuka Abalina Mukenenya e Mukono General Hospital?

EKITUNDU EKYOKUNA

9. Osanze Kusomoozaki Nga Obunyisa Obujjanjabi buno eri Abavubuka Abalina Munkenenya? Okusomozebwa okwo Okuvunuse otya?
10. Nga Omujjanjabi, Omubudabuzi, Oba Mukulembeze Osaze Magezi Okuletera Abavubuka Abalwadde Okujumbila Obujjanjabi bwa ART Mu Disitulikiti Ye Mukono?
11. Ebimu kubisobola Okutumbula Obujjanjabi bwa Obujjanjabi bwa ART e Mukono GeneralHospital

Mulimu;

Okutuuka mu bantu, Emisomo ku nkolaza ART, Obujjanjabi bwa buliwendi nkufuna.

-Wali Owulidde kubuwereza obwo' bwogedwaako?

-Bwakuyamba butya?

EKITUNDU EKYOKUTANO

12. Kiki kyolowooza ekyandi koledwa okutumbuula Obujjanjabi bwa ART mu mitendera jjinowamanga;

•Empereza

•Abalabilira

• Abavubuka

Ekyonderezeddwako Ekyokuna

Okwebuzako kubavubuka Abawangaala Nu Mukenenya nga betabudde awamu

Ennyanjula

Ebikwata Ku Bavubuka Abawangaala Ne Mukenenya.

Mbalamusiza nyo erinya lyange nze Innocent kabagenyi Omuyizi ku Uganda Christian University Ndi Mukunonyereza ku ngeri jjetusobola Okwagazisa Abavubuka Abawangaala ne mukenenya Okujumbila Obujjanjambi bwa ART e Mukono General Hospital.

Okunonyereza kuno kyekimu kubisanizo okusobola Okwongerayo Emisomo jjange ku digirieyokubiri.

Okunonyereza kuno kwa kyaama nyo era buli ekyogedwa kisigala wakati wange naawe. Oliwa Ddembe Okwanukula ekibuuzo kyona oba Obutayanukula

Era bwowulira nga Tewandiyagedde kwogera kubintu ebimu Oliwa Ddembe

Okukileka.1-Wandiyagadde Okwogerako naffe Oba Nedda?

Ekitundu Ekisooka

1. Ebikwaata ku Ngeri Z'obungi bw'abantu
2. Obutonde Obuwala or obulenzi

Ekifo Jemubela

3. Jemusibuka,
   Ekyaalo,
   Egombolola
4. Mwategera mutya nti

mulina Mukenenya?

6.Kiki Ekyabasikiriza Okufuna Obujjanjabi bwa ART?

Ekitundu Ekyokubiri

Okuvumwavuma N'okusosolwa

7.Mwayisibwa mutya bwemwasooka Okujja Okufuna Obujjanjabi e Mukono General Hospital?

8.Mwasikirizibwa mutya Okujja mufune Obujjanjabi?

Ekitundu Ekyokusatu

Okwekiririzaamu

9. Mwayisibwa mutya nga muze okufuna Edagala?
10. Kiki Ekibayamba okusobola Okumila Eddagala lyamwe mubudde?

OMULAMWA OGUSOKA

Byetwetaaga Okufuna Obujjanjabi bwa ART

11. Kiki kyemuyinza okola Okusobozesa Obujjanjabi bwa ART okutuuka ku bantu?

OMULAMWA OGWOKUBIRI

Tukoze tutya Okutumbula Obujjanjabi bwa ART mubavubuka Abalina Mukenenya?

12. Kusomoozaki Abavubuka Abalina Mukenenya kwebasanze Mukufuna Obujjanjabi bwa ART eMukono General Hospital?

OMULAMWA OGWOKUSATU

Ebivva Mu Kujjumbila Okozesa Obujjanjabi Bwa ART Mubalina Mukenenya?

13. Biki Ebiyinza okusikiriza abavubuka Mubujjumbize Mu Kozesa Obujjanjabi bwa ART e Mukono GeneralHospital?

14. Kusomoozaki Abavubuka Abalina Mukenenya kwebasanze Mukufuna Obujjanjabi bwa ART eMukono General Hospital?

Ebivva mu Kweujjumbila Okozesa Obujjanjabi Bwa ART Mubavubuka

15. Biki Ebiyinza Okuva Mubujjumbize Mu Kozesa Obujjanjabi bwa ART e Mukono GeneralHospital?

EKITUNDU EKYOKUNA

Gavumenti n'ebitongole byabanakyeewa Basobodde batya Okuyamba ku bujjanjabi bwa ART

16. Olowooza Gavumenti n'ebitongole byabanakyeewa bakoze ekimala Okutumbula Obujjanjabibwa ART e Mukono General Hospital?
17. Ebimu kubisobola Okutumbula Obujjanjabi bwa Obujjanjabi bwa ART e Mukono GeneralHospital

Mulimu;

Okutuuka mu bantu, Emisomo ku nkolaza ART, Obujjanjabi bwa buliwendi nkufuna.

-Mwali muwulidde kubuwereza bwe' myodegeko?

-Bwabayamba butya?

18. Kiki kyemulowooza ekyandi koledwa okutumbuula Obujjanjabi bwa ART mu mitendera jjinowamanga;

•Empereza

•Abalabilira

• Abavubuka

Ekitundu Ekyokutano

UGANDA CHRISTIAN UNIVERSITY

Foomu Ekuwa Olukusa Okutegezeebwa ku Bavuka Abalina Akawuka Kamukenenya AbasukaEmyaka 18.

Omunoonyereza: Innocent Kabagenyi

Omutwe: Enongoosereza Mubujjumbize Bwenzijjanjjaba Ya ART Mubavubuka E Mukono GeneralHospital.

Enyanjula: Erinya lyange Nze Innocent Kabagenyi

Ndimuyizi Ku Ssematendekero Ya Uganda Christian University Nga Nsoma Diguli Yange'yo KubiriMu Kukebera N'okulamula.

Okunonyereza Kuno Kuluubirira Okakasa Ebaluwa yange'mirimu ensaniza okola diguli yange e yokubiri.

Mbasba twenyigire mu kunoonyareza kungeri Enonogoosereza Mubujjumbize Bwenzijjanjjaba Ya ART Mubavubuka Abalina Mukenenya e Mukono General Hospital.

Okunonyereza kuno kutunulira obulamu Abavubuka

Abalina Mukenenya ne'ngeri Jjebajumbiddemu Obujjanjjabi n'Emitendera Ejiteredwawo. Mukunonyereza kuno Nandisabye Buli Ssekinoomu Okwenyigiramu kubanga kituyamba Okuteegera Okusomozebwa kwemuyitamu okutuuka kubujjanjjabi.

Kino kigenda Kuyamba Nyo Abavubuka Abatiini Okwenyigira mu kunonyereza nga bawa edowooza Yabwe Kungeri Jjebayinza Okuyambibwa Oba Okumumanyisibwa Kubujjanjjabi. Okubuuzibwa kuno kujja kukulungula edakiika 25-30 era tukusubiza eboozi yaffe naawe Yakyaama…

Wabula Ebyona bye twogedde bijja kuterekebwa kulutaambi olwe nsonga z'Ebyokunonyereza. Nkusaba Osooke Oyitemukiwandiiko kino Nga Ttonasaako Mukono Wabula bwoba Olina EkibuuzoKyona Tujja Kikyanukula.

Ekigendererwa: kunoonyareza kungeri Enonogoosereza Mubujjumbize Bwenzijjanjjaba Ya ART Mubavubuka Abalina Mukenenya e Mukono General Hospital.

Tujja kubuuzayo ebibuuzo mubufunze Ebikwatagana Kukunoonyereza kuno.

Gwe nga omuvubuka alina mukenenya Obulamu obusanze otya Okuva bwewatandika okujjumbila enzijjanjjaba ya ART e Mukono General Hospital?

Buli kyotubulira kyakutuyamba okuloongoosa Obuwereza n'obujjanjjabi bwa ART mumalwarirwo mu gwanga okutaasa abavuka.

Era Okunonyereza kuno kugenda kuyambako mulongoosa amateeka agakwaata kubyobulamu. Emitendera: Omunoonyereza waffe ajjakuwa Foomu Ekuwa Olukusa Okutegezeebwa. Ebibuuzo Wamaanga bilimubufunze nga bwetwakutegezeza

Okunonyereza kuno kugenda mumaterekero gaffe.

Mpozi ne'kilala ebikwatako nga omuntu bijja kumibwa ngabya kyaama okugeza amanyago ne'bilala.

Ekyelalikirizaamu: Ebibuuzo ebibuzibwa biyinza okukosaamu nga omuntu kyova olaba ttewali muntu Akakidwa kwanukula bibuzibwa.

Oliwa wa ddembe okugaana oba okwanukula ekibakikubuzidwa era oliwa ddembe okuyimiriza okubuzibwa ebibuuzo.

Emiganyulo: Okunonyereza kuno kugenda kuyambako okulongoosa nyo ebyobulamu n'okwongera okutuusa Obujjanjabi bwa ART eri buli muvubuka naye nga kivude kugwe okwetabamu.

Okukuuma ebyaama: obubaka bwona bwetukunganyiza netwekeneenya bugenda kuterekebwaku Uganda Christian University. Buli ekikwatidwa kubutambi bya kuterekebwa mubifo ebyekyaama mu University sossi mubantu Ssekinoomu.

Tukusubiza nti tewaliwa bikukwatako okugeza nga'manyago webigenda kulabikila.

Ku Uganda Christian University waliwo ekitongole ekikola ku ssaayansi w'embeera z'abantu kilimu akakiiko ka Research Ethics Committee (REC) Akavunanyizibwa okwekeneenya Okunonyereza kwona.

Ebikuzamu amanyi okukola ekintu: Okunonyereza kuno kwakukozesebwa abakugu abakwatibwako okugeza Amalwariro,ababazi b'amateeka n'abalala.

Era Okunonyereza kuno kugenda kulongooseza ddala Obujjanjjabi bwa ART mpaka kumuntu asemberayo ddala.

Okunonyereza kuno kujja kuzaamu amanyi abwetabyemu okumanya anti newankubadde ssifunyemu sente naye nabo ngase etofaali kuku longoosa ebyobulamu.

Ekibuuzo oba okweraliikirira: bwoba ofunyeemu enkenyera yona tukusa otutegezeeko kumikutu jjaffe wamanga kabagenyi190@gmail.com

(0776 525378) Oba Mwami.Solomon Mwije by email at smije@ucu.ac.ug (0772 049094)

Bwoba ofunyemu okweralikirira ku ddembelyo nga Omuntu Osobola Okuwandikira Akakiiko kano Research Ethics Committee (REC) Akavunanyizibwa okulwanilira eddembe ly'obuntu Mukunonyereza kuno.

Wofiisi ziba nzigule mu wiiki okuva ku balaza mpaka kulwokutaano,Esimu 0312 350885 ,0775 737326 or rec@graduate.ucu.ac.ug

Research Ethical Committee, Uganda Christian University P.O. Box 4, Mukono, Uganda.

Foomu Ekuwa Olukusa Okutegezeebwa oba Okunonyereza:

Nsomye ne ntegeera bulungi ebiwandikidwa.

Nga ssiwalirizidwa nzikirizza okwetaba Mukunonyereza kuno oba okuvaamu wenjagairidde

Erinnya lyange.

Okuteekako omukono……

Omukono gwo'munonyereza…….

Enaku z'omwezi.....

UGANDA CHRISTIAN UNIVERSITY

INFORMED CONSENT FORM FOR HIV POSITIVE ADOLESCENTS ABOVE 18 YEARS

Investigator: Innocent Kabagenyi

Study Title: Evaluating interventions for improving ART Adherence among HIV positive adolescents at Mukono General Hospital.

Introduction: My name is Innocent Kabagenyi a student at Uganda Christian University and I am a student at Uganda Christian University currently pursuing my Master's degree in Monitoring and Evaluation. This study aims to fulfill my thesis for a Master's degree qualification. I'm kindly inviting you to participate in the study aimed at Evaluating interventions for improving ART adherence at Mukono General Hospital. This is a qualitative study that seeks to gather experiences from HIV positive adolescents regarding their adherence by use of a qualitative methods approach. This study is participatory and it seeks to understand the circumstances and challenges that the teenagers at Mukono face in their day-to-day adherence journey. This information will enable the teenagers to fully engage in the study by expressing themselves as far as ART adherence is concerned.

This interview will approximately take between 25 -30 minutes of your time. Your confidentiality will be highly guaranteed. Please note that this information will be recorded for purposes of data transcription. You are free to read this entire document and free to any questions where necessary before signing this document.

Purpose: The purpose of this research is to evaluate interventions for improving ART adherence among HIV positive adolescents at Mukono General Hospital. You will be provided with semi-structured interview questions by the researcher. The questions in this interview will include your experiences as an HIV positive adolescent for using ART services at Mukono General Hospital. The information provided may be used by the medical fraternity, and hospitals to improve general practices in as far as ART adherence among adolescents is concerned, it may also be used for policy making to make better interventions and by academia for further studies.

Procedures: You will be provided with an informed consent form by the researcher. The questions asked in this study are semi-structured. As earlier mentioned, this interview will be recorded. A code will therefore be used to identify your response. This therefore means that your name will not be used in any of the record labels of the audio or transcription of the interview.

Risks to participation: Please note that you are not being coerced or forced to participate in this study. Therefore, some of the questions asked may be very sensitive and, therefore, may be hard or cause discomfort to answer. For this matter, you are therefore free to ask any questions where necessary and also free to choose not to answer some questions. You are also free to stop the interview whenever you wish.

Benefits to participants: You may not be of direct benefit in this study. Albeit the benefit may be indirect since the information provided may be used by the medical fraternity and hospitals to improve general practices insofar as ART adherence among adolescents is concerned, it may also be used for policy making to make better interventions and by academia for further studies.

Confidentiality: The information shared will be reviewed, stored, and analyzed at Uganda Christian University. The confidentiality of the recorded information will be locked away in a safe file at the university. While traveling, information will not be left in the car or on the researcher's side. All research materials will be kept for five years, as guided by APA standard guidelines. This information may be used in the future for research or distributed to another researcher without your consent. However, information that could identify you in any way will be removed. The research records may

be reviewed by the Research Ethics Committee (REC) of Uganda Christian University under the Department of Social Sciences.

Incentives: The findings from this study may be used directly by different stakeholders such as hospitals, and policymakers, and the information provided in the study. However, your benefit to this study will be through the provision of better ART services to HIV Positive adolescents. This information will therefore be used as an incentive for a guide to the study hence no compensation in the form of financial or other material benefits will be given to the participants in this study.

Questions or concerns: In case of any questions or concerns related to this study, please reach out to me by email: at kabagenyii90@gmail.com or by direct phone contact 0776 525378. You can also contact my dissertation supervisor, Mr. Solomon Mwije by email at smije@ucu.ac.ug or by phone contact 0772 049094

If you have concerns regarding your rights in the research study you may contact the Research Ethics Committee (REC) which is concerned with the protection of the subjects in the research project. The research office is open during Weekdays (Monday to Friday) or may be contacted on 0312 350885 or the secretariat at 0775 737326 or email rec@graduate.ucu.ac.ug or writing: Research Ethical Committee, Uganda Christian University P.O. Box 4, Mukono, Uganda.

Consent to participate in research:

'I have read and clearly understood the above information. I agree to participate in this study. You may choose to participate or discontinue to do so whenever I feel like.'

Participants
Name……..……Date…….

Investigator's Signature ……Date…….