SCHOOL OF MEDICINE AND HEALTH SCIENCES

KNOWLEDGE AND ACCEPTABILITY OF HIV PRE-EXPOSURE PROPHYLAXIS (PrEP) AMONG ADOLESCENTS IN LUSAKA DISTRICT, ZAMBIA

BY

YVONNE KUMWIMBA MUTOMBO

MPH21211926

MASTER OF PUBLIC HEALTH

SUPERVISOR

MELVIN MWANSA

mwansamelvin@gmail.com

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DECLARATION

UNIVERSITY OF LUSAKA

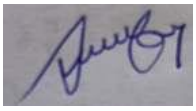
SCHOOL OF POSTGRADUATE STUDIES

MPH810 – DISSERTATION

RESEARCH DISSERTATION CLEARANCE AND DECLARATION

I KUMWIMBA MUTOMBO YVONNE, do declare that this dissertation is my own original work. It has been guided and marked by my supervisor in accordance with the guidelines for Master of Public Health at the University of Lusaka. It has not been submitted elsewhere for a degree at this or another University.

Name KUMWIMBA MUTOMBO YVONNE **Computer Number**_MPH21211926

Signature  **Date**_5TH October 2023

Supervisor

I, MELVIN MWANSA guided, read this research proposal and approved it for ethical submission. I am satisfied that this is the original work of the author under the name it is presented. I confirm that the work has been complete satisfactorily and ready for ethical submission.

Name of Supervisor MELVIN MWANSA

Signature  **Date**_5TH October 2023

DEDICATION

This thesis is dedicated to my parents and children. My father, the late Pastor Sylvain Mpanga Bubi did not only raise and nurture me but also invested for years in my education and intellectual development. May his soul continue resting in peace. My dear mother Astrid Ilunga has been my first motivational speaker. she prayed and worked earnestly for her daughters to be educated. The presence of my children has made me a strong and dedicated woman; not only they encourage me but they celebrate my achievements as their own.

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ABBREVIATIONS

HIV - Human Immunodeficiency Virus

PrEP - Pre-Exposure Prophylaxis

ARVs - Antiretroviral drugs

STIs - Sexually Transmitted Infections

WHO - World Health Organization

SPSS - Statistical Package for the Social Sciences

HIV - Human Immunodeficiency Virus

AIDS - Acquired Immunodeficiency Syndrome

FSW - Female Sex Workers

VCT - Voluntary Counseling and Testing

PEP - Post-Exposure Prophylaxis

LGBT - Lesbian, Gay, Bisexual, and Transgender

PMTCT - Prevention of Mother-to-Child Transmission

VMMC - Voluntary Medical Male Circumcision

NGO - Non-Governmental Organization

ZAMPHIA - Zambia Population-Based HIV Impact Assessment

ZDHS - Zambia Demographic and Health Survey

MOH - Ministry of Health

ART - Antiretroviral Therapy

ABSTRACT

This study aimed to assess HIV Pre-Exposure Prophylaxis (PrEP) awareness and uptake among adolescents in Lusaka District, Zambia. With a high HIV prevalence in the region and adolescents being a vulnerable population, understanding their awareness and attitudes toward PrEP is crucial for designing effective HIV prevention strategies. A mixed-method survey was conducted among 120 adolescents in Lusaka District, Zambia. Data was collected through structured questionnaires, capturing information on PrEP knowledge, acceptability, HIV risk perceptions, and key demographic characteristics. Descriptive statistics were used to present the data, and chi-square tests were performed to explore associations between key demographic characteristics and PrEP acceptability. The findings revealed that 70% of the participants had prior PrEP knowledge, but there were misconceptions about its purpose, with some equating it with antiretroviral drugs. While there was willingness of PrEP use as an HIV prevention method, concerns were raised about its effectiveness, safety, and suitability for individual circumstances. Younger adolescents (15-19 age group) were more likely to consider using PrEP than older adolescents (20-24 age group). Gender was also associated with PrEP acceptability, although further exploration is needed. Participants demonstrated awareness of HIV risk and expressed worry about acquiring HIV, but misconceptions about the effectiveness of condoms in preventing HIV were evident. The study revealed the need for focused awareness campaigns to improve accurate PrEP knowledge and dispel myths surrounding its use. Addressing concerns about effectiveness and safety is essential to promote PrEP acceptability among adolescents. Tailoring interventions to different age groups and genders can enhance PrEP uptake. The findings underscore the importance of comprehensive sexual education and risk reduction strategies to address HIV risk perceptions. These insights have implications for public health interventions aiming to increase PrEP uptake and reduce the burden of HIV/AIDS among adolescents in the Lusaka District, Zambia.

CHAPTER ONE

INTRODUCTION

1.0 Background

Pre-exposure prophylaxis (PrEP) has emerged as an efficient tool to prevent HIV acquisition, especially among high-risk populations. However, while PrEP usage has expanded globally, it remains low among key target groups like adolescents and youth (Currie, 2017). Given their unique developmental, social, and behavioural vulnerabilities, expanding PrEP access for adolescents and young adults represents a critical priority for comprehensive HIV prevention. Recent data highlights the urgent need to enhance HIV prevention efforts focused on youth. According to UNAIDS (2019), the world fell far short of the 2020 goal to reduce new HIV infections to less than 500,000 annually, with 2.1 million new infections in 2010 only declining by 16% - leaving a significant gap to target. Critically, around 5% of all people living with HIV and 11% of new adult HIV infections occur among youth under 25 years (UNAIDS, 2019). In sub-Saharan Africa, home to over 50% of the global population of adolescents, 1.5 million youth are HIV-positive, accounting for 88% of all adolescent HIV cases worldwide (UNICEF, 2020).

Zambia bears a disproportionately high HIV burden, with a 12.3% prevalence among those aged 15-59 years - one of the highest rates in Southern Africa (ZDHS, 2019). Adolescents and youth comprise a growing share of new HIV cases in Zambia, representing 20% of annual new diagnoses (Ministry of Health, 2020). This highlights an urgent need to intensify prevention efforts among Zambian adolescents and youth at risk of HIV acquisition. With their unique characteristics, vulnerabilities, and needs, adolescents and young adults stand to benefit immensely from accessible and acceptable PrEP services. Investigating knowledge, attitudes, perceived risks, and willingness to use PrEP among youth can inform targeted policies and interventions to unlock the prevention potential of PrEP among this priority population. Hence, the goal of this study is to investigate adolescents in the Lusaka District's understanding of and acceptance of PrEP.

1.1 Statement of the problem

Adolescents in sub-Saharan Africa have a higher chance of contracting HIV than adults do, according to the World Health Organization (WHO), and this population needs effective HIV prevention strategies. A projected 650 000 individuals worldwide died in 2021 from diseases associated with HIV and AIDS, and 1.5 million people contracted the disease. Around 5% of

all HIV-positive individuals and 11% of new adult HIV infections are teenagers. 86% of the newly infected, or around 1.47 million people, reside in sub-Saharan Africa. With an estimated death rate of 30% among adolescents in Zambia, HIV is a major cause of mortality in this age group (WHO, 2021). PrEP is highly effective in reducing the risk of HIV transmission among adults (Baeten et al., 2012). PrEP was formally introduced in Zambia in 2016 as a strategic supplementary strategy for HIV prevention. Nonetheless, despite this accomplishment, there is a lower rate of acceptance, particularly when it comes to groups at risk. With the annual incidence of HIV among adults aged 15 and older predicted to be 0.33 percent in 2021, which equates to about 28,000 new cases of HIV annually among adults, including adolescents in Zambia, the most effective strategy now involves focusing on at-risk groups with specialized measures. Even though HIV pre-exposure prophylaxis (PrEP) is a viable option for preventing HIV transmission, little is known about how well-known and well-accepted PrEP is among teenagers in the Lusaka District of Zambia. Teenagers in this area may experience particular difficulties with HIV prevention and could benefit from more widespread use of PrEP as a preventative intervention. Hence, the goal of this study is to investigate adolescents in the Lusaka District's understanding of and acceptance of PrEP.

1.2 Significance of the Study

This study makes an important contribution to understanding the awareness, perceptions, and willingness to use PrEP among urban Zambian adolescents. The findings will help fill key knowledge gaps around PrEP among youth in Lusaka, an understudied population with high HIV incidence.

The study findings can guide policies, interventions, and further research to address the multi-level barriers to PrEP use among vulnerable adolescent groups in Zambia's urban settlements. As one of the first investigations focused on Lusaka youth, the study will generate actionable evidence to improve PrEP delivery and optimize HIV prevention outcomes among Zambian adolescents.

Additionally, by generating empirical insights on PrEP awareness and acceptability specific to the Zambian adolescent context, this study will add to the wider scholarly knowledge base and the evidence produced through this research will not only inform local programming but also make a valuable scholarly contribution to the growing academic literature on PrEP access and uptake among adolescents in sub-Saharan Africa.

1.3 Main Objective

To assess PrEP knowledge and acceptability among adolescents in the Lusaka district, Zambia.

1.4 Specific Objectives

i. To assess PrEP knowledge among adolescents in the Lusaka district, Zambia
ii. To explore PrEP acceptability among adolescents in the Lusaka district, Zambia
iii. To explore associations between key demographic characteristics (age and gender identity) and PrEP acceptability among adolescents Lusaka district, Zambia
iv. To assess HIV risk perceptions among adolescents in the Lusaka district

1.5 Research Questions

i. What knowledge do adolescents have on PrEP in the Lusaka district, Zambia?
ii. What acceptability levels do adolescents have on PrEP in the Lusaka district, Zambia?
iii. What associations are there between key demographic characteristics (age and gender identity) and PrEP acceptability among adolescents in the Lusaka district, Zambia?
iv. What risk perceptions do adolescents have on HIV in the Lusaka district?

1.6 Scope of the study

The study was conducted in selected areas in Lusaka District e.g., Youth friendly corners.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

HIV/AIDS remains a significant public health concern globally, with Sub-Saharan Africa being the most heavily affected region. Zambia, in particular, has a high prevalence of HIV, and adolescents are a vulnerable population that requires targeted interventions. Pre-Exposure Prophylaxis (PrEP) is a biomedical prevention strategy that has demonstrated efficacy in preventing HIV transmission when taken consistently. This literature review aims to investigate the knowledge and acceptability of PrEP among adolescents in Lusaka District, Zambia, and explore associations between key demographic characteristics and PrEP acceptability, as well as assess HIV risk perceptions among this population.

2.1 Empirical review

High rates of new HIV infections among adolescents make HIV a major public health problem around the world. Pre-exposure prophylaxis (PrEP), a biological intervention that can significantly lower the risk of HIV acquisition in people who are at high risk of infection, is very effective. Nevertheless, nothing is known about how widely known and accepted PrEP is among teenagers. This review of the literature seeks to present an overview of the current international research on adolescents' understanding and acceptance of PrEP.

2.2 Knowledge of PrEP

The knowledge of PrEP among adolescents is a critical factor in determining its potential impact as an HIV prevention tool. Previous studies conducted in Zambia have shown that awareness and understanding of PrEP in the general population are relatively low. The literature suggests that adolescents might have limited knowledge of PrEP due to inadequate sexual education in schools and limited access to health information. Additionally, the stigma surrounding HIV and sexual health may further impede awareness and knowledge dissemination. This section of the literature review will explore various studies that have assessed PrEP knowledge levels among adolescents in Lusaka District and identify the gaps that need to be addressed in educational campaigns and healthcare delivery.

Research has shown that adolescents worldwide generally have little knowledge of PrEP. Just 16.6% of teenagers in China, according to a study by Chen et al. (2021), and only 29% of adolescents who participate in high-risk behaviors in in the US, according to a study by Krakower et al. (2015), had ever heard of PrEP. This ignorance can result from both a lack of

education regarding PrEP specifically and a general lack of access to information about HIV preventive methods. According to a study by Kumi Smith et al. (2020), adolescents in Zambia had typically little knowledge of PrEP. Only 10% of the teenagers knew how PrEP worked, and only 23% had ever heard of it. This ignorance can result from both a lack of education regarding PrEP specifically and a general lack of access to information about HIV preventive methods.

According to the study by Bridget, 2018 on the investigation of the acceptability of lifelong antiretroviral therapy (ART) among HIV-positive women receiving antenatal and postnatal care services in selected health centers in Lusaka. The study was conducted in 2016-2017 and involved 427 HIV-positive women in their reproductive age. The study found that overall, the majority of women were willing to accept ART for life, but there was still a gap in knowledge and stigma and discrimination in some communities. The paper also mentions the progress made in reducing mother-to-child transmission of HIV since the introduction of the Global Plan towards the Elimination of New HIV Infections among Children, but notes that ensuring full coverage of the treatment as prevention strategy remain the only path to achieve elimination of mother to child transmission and to halve HIV-related deaths among pregnant women and new mothers.

2.3 Acceptability of PrEP

Acceptability is a crucial determinant of PrEP uptake and adherence. Several factors can influence the acceptability of PrEP among adolescents, including perceived effectiveness, safety concerns, side effects, and stigma. Studies have indicated that PrEP acceptability might be influenced by cultural beliefs, family support, and the quality of the healthcare system. Some research has also suggested that adolescents may have concerns about the long-term implications of using PrEP and may fear judgment from peers and community members. This section will review existing literature that examines the factors affecting PrEP acceptability among adolescents in Lusaka District and provide insights into potential strategies for promoting its uptake.

According to studies, adolescents who have heard of PrEP are very accepting of it. In a 2017 study conducted in the United States by Hosek et al. (2019), it was discovered that 82% of adolescents who engage in high-risk activities would take PrEP if it were recommended to them. In a similar vein, Huang et al (2020).'s study in China discovered that 72.2% of adolescents would use PrEP if it were free. However numerous research found that stigma and

discrimination were the main obstacles to teens using PrEP (Chen et al., 2021; Hosek et al., 2017). Stigma and discrimination could be due to misconceptions about PrEP, as well as negative attitudes towards individuals at high risk of HIV infection. In a study conducted in Zambia by Willie et al. (2020), it was discovered that adolescents who had heard of PrEP were highly accepting of it. Yet, the study also discovered that stigma and prejudice were significant obstacles to teens using PrEP. Misconceptions regarding PrEP and animosity towards people at high risk of contracting HIV may be to blame for stigma and discrimination.

A study by Roma, 2020 on the feasibility and acceptability study on the use of novel technology like text messaging services (SMS) for preventing HIV among opioid-dependent people who use drugs (PWUD) and are currently taking pre-exposure prophylaxis (PrEP) to prevent HIV acquisition. The study found that the use of daily PrEP reminder text messages was perceived as valuable and acceptable by the participants. The feasibility of the text messaging service was high, with 100% of participants willing to receive text messages, 95% retention, and 97% successful delivery of text messages. However, the acceptability of regular text messages on HIV risk reduction needs novelty and innovation. E.g.: making it a two-way interaction with inclusion of participant feedback would make it more appealing for end users. Overall, the findings provide preliminary evidence of the feasibility and acceptability of a text messaging-based approach as a potential tool for primary HIV prevention strategy that will ultimately improve PrEP adherence and reduce HIV risky behaviour among this underserved population.

2.4 Associations with key demographic characteristics

Understanding the associations between key demographic characteristics, such as age and gender identity, and PrEP acceptability is vital for targeted intervention strategies. Studies have suggested that younger adolescents may have different perceptions of PrEP compared to older adolescents. Similarly, gender identity may play a role in shaping attitudes towards PrEP, as traditional gender norms might influence the acceptability of a prevention method that is primarily associated with sexual health. This section will review the available literature on the relationship between age, gender identity, and PrEP acceptability among adolescents in Lusaka District, Zambia. Several studies have revealed critical demographic traits that are related to adolescents' acceptance of PrEP. In a 2017 study conducted in the United States, Hosek et al. discovered that women were more likely than men to view PrEP favorably. Similar findings were made by (Mudekunye et al.2020) in Zimbabwe, who discovered that females and younger adolescents were more likely to have favorable opinions toward PrEP. These results imply that

increasing PrEP use among adolescents may require customized interventions that consider gender and age.

Several studies have found that age is a significant predictor of PrEP acceptability among adolescents. Older adolescents tend to show higher levels of PrEP acceptability compared to their younger counterparts. Older adolescents are more likely to be sexually active and have a better understanding of their risk of acquiring HIV, which can lead to increased acceptance of preventive measures like PrEP. Older adolescents may have a higher level of maturity and autonomy in making health-related decisions, making them more willing to consider and use PrEP.Younger adolescents may face barriers such as parental consent requirements or societal stigma, which can limit their access to PrEP and influence their acceptability.

Emerging evidence suggests female adolescents tend to show higher acceptability and willingness to use PrEP compared to their male peers (Chisanga et al.2017). There are several potential reasons for this gender difference:

1. Females may perceive themselves as more vulnerable to acquiring HIV due to both biological and social factors. The physiologic susceptibility of younger women to HIV through vaginal intercourse coupled with gender inequality, lack of agency in relationships, and sexual violence heighten females' risk perceptions, which could motivate greater PrEP acceptability (Camlin et al., 2021).

2. Male adolescents are subjected to sociocultural norms and masculinity stereotypes that discourage open discussions around HIV prevention and health-promoting behaviors. Stigma prevents many adolescent boys from seeking sexual healthcare, reducing awareness and acceptability of new tools like PrEP (Koech et al., 2018).

3. Research shows young women tend to have greater health-seeking behaviors overall, which translates to an increased willingness to adopt biomedical prevention methods like PrEP (Roberts et al., 2020). Male adolescents may exhibit issues around acknowledging HIV risk and the need for additional prevention.

4. Gender socialization also impacts perceptions of self-efficacy in adopting new health behaviors. Females may find it more acceptable to take preventive measures like PrEP compared to males.

Understanding and addressing the gender-specific barriers inhibiting PrEP adoption among male youth is crucial to expanding access for both adolescent girls and boys. More research is needed on designing tailored, culturally competent PrEP promotion and delivery models for diverse groups of adolescents.

While research on the relationship between sexual orientation and PrEP acceptability in adolescents is still emerging, some studies have found preliminary evidence that sexual minority youth may have a higher willingness to use PrEP compared to their heterosexual peers (Chisanga et al.2017). Several factors may contribute to increased PrEP acceptability among lesbian, gay, bisexual, transgender, queer/questioning, and other (LGBTQ+) adolescents.

Firstly, sexual minority adolescents face disproportionate vulnerability to HIV infection stemming from multiple levels of stigma, discrimination, marginalization, and barriers to health services (Mustanski et al., 2021). Homophobia and transphobia often limit access to sexual health education, resources, and preventive services among LGBTQ+ youth. Secondly, the burden of HIV is significantly higher in certain sexual minority subgroups, particularly among young gay and bisexual males as well as transgender individuals (Johns et al., 2019). For example, over 90% of new HIV infections among adolescents in the U.S. occurred among gay and bisexual male youth in 2019 (CDC, 2021). Therefore, the heightened and intersecting risks faced by sexual minority adolescents, coupled with the realization of elevated HIV prevalence in their communities, may motivate higher acceptability of PrEP as an additional preventive measure. Socioeconomic Status Limited research has examined the impact of socioeconomic status (SES) on PrEP acceptability among adolescents.However, it is essential to consider the influence of SES, as it can significantly affect access to healthcare services, including Prep: Adolescents from lower socioeconomic backgrounds may face financial barriers to accessing PrEP, which can impact their acceptability. On the other hand, targeted PrEP promotion and support programs for vulnerable populations could enhance acceptability and uptake in lower SES groups.

2.5 Risk perceptions of HIV.

The perceived risk of acquiring HIV is a significant factor influencing the uptake of HIV prevention methods such as PrEP. Adolescents may underestimate or overestimate their risk of HIV infection based on their sexual behaviors, knowledge of HIV transmission, and perceived vulnerability. Previous research in Zambia has shown that risk perceptions among adolescents are influenced by factors such as peer norms, sexual experiences, and knowledge of HIV

transmission modes. This section will review the literature on HIV risk perceptions among adolescents in Lusaka District, Zambia, and their potential impact on PrEP acceptability and uptake.

Several studies globally have found that adolescents generally perceive themselves as having low personal risk of HIV infection. For example, a multi-country study by Biello et al. (2017) found that among adolescents who engaged in high-risk sexual behaviors, only 44% believed they were susceptible to acquiring HIV. This highlights a disconnection between actual and perceived HIV risk among youth populations. Similarly, a study in Nigeria by Aderomilehin et al. (2021) revealed low perceptions of HIV risk among adolescents, with just 43% of participants perceiving themselves to be in danger of contracting HIV. The low levels of perceived HIV risk are concerning given the high incidence of new HIV infections among adolescents, especially in sub-Saharan Africa (UNAIDS, 2022).

Several factors may contribute to adolescents' underestimation of their HIV vulnerability. Lack of comprehensive knowledge about HIV transmission routes, treatment options, and prevention strategies appears to play a key role (Biello et al., 2017). Many adolescents also have inadequate understanding and education about safer sex practices and perception of behavior-based HIV risks. Additionally, a sense of invincibility, low-risk appraisal skills, and cognitive immaturity in accurately assessing dangers are common among youth (Romer et al., 2009).

Targeted efforts to improve HIV risk perception through quality sexual health education and robust risk appraisal strategies tailored to adolescents are essential to enhancing the uptake of protective behaviors and prevention tools like PrEP. Addressing gaps in knowledge, cognitive biases, and unrealistic optimism can help improve the calibration of perceived and actual HIV risk among youth.HIV risk perceptions among adolescents in Lusaka District, Zambia, play a critical role in shaping their attitudes and behaviors toward HIV prevention, including the acceptance and utilization of Pre-Exposure Prophylaxis (PrEP). Understanding how adolescents perceive their risk of acquiring HIV is crucial in developing effective interventions to address the HIV epidemic in this vulnerable population. Several studies and research findings shed light on the factors influencing HIV risk perceptions among adolescents Adolescents' level of knowledge about HIV transmission and prevention significantly impacts their risk perceptions. Studies have shown that adolescents with accurate and comprehensive knowledge about HIV are more likely to have a realistic understanding of their risk (PWG 2015).

While many adolescents underestimate their HIV risk, inaccurate knowledge and misconceptions about HIV transmission routes can also lead to overestimations of personal vulnerability (Martins, 2021). Understanding the nuances around HIV risk is critical for calibrated risk perception. Several factors related to adolescents' behaviors and partner characteristics impact their subjective risk appraisals. Engaging frequently in unprotected sex, having multiple sexual partners, and other risky sexual behaviors are associated with higher perceived HIV risk). Adolescents also tend to perceive greater risk if they suspect their partners participate in high-risk behaviors or if they believe their partners may have HIV already (Kenly , 2018).

Peer behaviors and norms additionally influence adolescents' HIV risk perceptions. Youth who think their close friends are vulnerable to HIV tend to rate their own risk higher as well, due to shared social contexts (Adolescent Health Foundation, 2016). Further, social stigma related to HIV as well as the marginalization of key populations can affect personal risk appraisals and willingness to adopt biomedical prevention like PrEP (Martins et al., 2020). Comprehensive, age-appropriate sexual health education addressing misconceptions is vital to promote an accurate understanding of behavioral and biomedical HIV risks among adolescents. Community-based efforts to build social support and reduce stigma are also important to create enabling environments for open discussions around HIV prevention including PrEP.

Adolescents' awareness of PrEP and its effectiveness in preventing HIV transmission can influence their risk perceptions. Studies have shown that when adolescents are informed about PrEP and its benefits, their perception of personal risk may increase, leading to a higher likelihood of accepting and using PrEP (Perception Watch Group, 2015). Conversely, limited awareness or misinformation about PrEP may hinder its acceptability. Socioeconomic and environmental factors also play a role in shaping HIV risk perceptions among adolescents. Factors such as low social economic status, restricted access to healthcare and education, and stigma associated with HIV can influence how adolescents perceive their vulnerability to HIV (Gender Health Initiative, 2019).

2.6 Gaps in Research

There is scant data on adolescents in low- and middle-income countries (LMICs) who are familiar with and embrace PrEP: There is a gap in our knowledge of PrEP uptake and acceptability in LMICs where the burden of HIV is highest because the majority of studies on PrEP knowledge and acceptability among adolescents have been carried out in high-income

countries. Moreover, there is little evidence on the impact of peer pressure on adolescents' adoption of PrEP: There is a need for research on how peer attitudes towards PrEP may affect adolescent uptake and acceptability because adolescents frequently rely on peers for health information and decision-making.

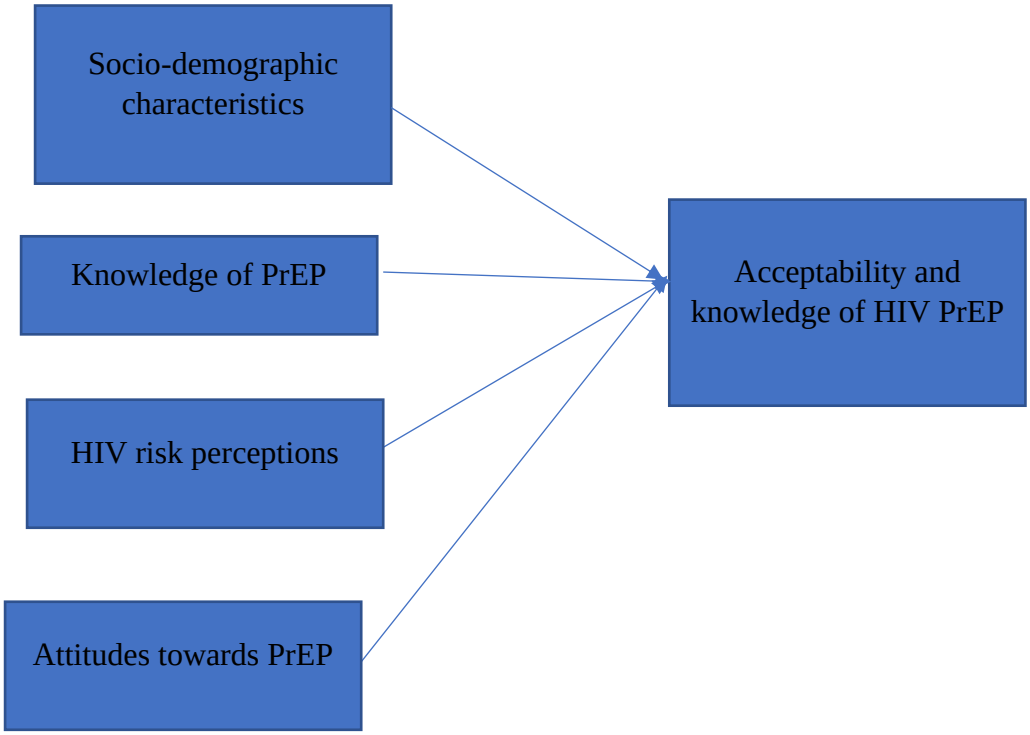
2.7 Theoretical framework

The theoretical foundation for this study will be the Health Belief Model (HBM). The HBM contends that beliefs and perceptions about one's perceived vulnerability to health problems, perceived severity of those problems, perceived advantages of acting, perceived disadvantages of acting, and perceived cues to act all have an impact on one's health-related behavior (Rosenstock, Strecher, & Becker, 1988). According to Montero and Kasprzyk (2008), the model has been used to examine HIV prevention practices such as condom use, HIV testing, and antiretroviral medication adherence. The HBM will be employed in this study to comprehend the variables affecting adolescents in the Lusaka District of Zambia's understanding and acceptance of PrEP. The study will shed light on the variables influencing adolescents' awareness and acceptance of PrEP and help develop tailored interventions to encourage PrEP uptake among this cohort. Specifically, the model will be used to analyze the various components.

2.8 Conceptual framework

Conceptual framework on knowledge and acceptability of HIV pre-exposure prophylaxis (prep) among adolescents in Lusaka district, Zambia

Independent Variables **Dependent Variable**



Source: Researcher, 2023.

Socio-demographic characteristics: This variable covers the socioeconomic status, education level, gender, and age of the study participants. It provides background information on the sample composition.

PrEP knowledge: This variable measures the level of pre-existing knowledge about PrEP among the target population, including awareness of its effectiveness, side effects, cost, and availability. It assesses factual understanding of PrEP.

Perceived HIV risk: This variable captures adolescent's subjective perceptions and feelings of vulnerability towards acquiring HIV infection. It includes the perceived likelihood of exposure to HIV and perceptions about personal susceptibility.

Attitudes towards PrEP: This variable encompasses the study participants' attitudes, beliefs, and acceptance of PrEP use. It examines the perceived benefits and disadvantages of using PrEP and the overall willingness to adopt PrEP based on its acceptability.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

Chapter Three presents the methodology utilized to conduct this research study on examining awareness and uptake of HIV pre-exposure prophylaxis (PrEP) among adolescents in the Lusaka District, Zambia. This chapter provides details on the quantitative, cross-sectional survey approach adopted to generate data about PrEP awareness, attitudes, and usage among an urban adolescent population in Lusaka. The research design, study setting, target population, sampling technique, data collection tool, ethical considerations, and data analysis procedures aligned to the aim of investigating PrEP-related knowledge and acceptability are outlined.

3.1 Research Approach

This study utilized a cross-sectional survey design. This design was selected because it is relatively inexpensive and allows for the fast collection of data on different variables from a population at a specific point in time (Setia, 2016). A cross-sectional design was appropriate because the research aimed to examine behaviours, attitudes, knowledge, and practices related to sexual and reproductive health among adolescents and young adults at one period rather than longitudinally.

The key advantage of using this design was the ability to gather data on multiple factors concurrently in a real-world setting rather than an experimental environment (Setia, 2016). As this was a descriptive study intended to capture a snapshot of sexual health issues among youth attending clinic services, a cross-sectional survey provided an efficient way to collect self-reported data from a sample representative of the target population. However, as cross-sectional surveys are observational, this precluded determining causal relationships between variables (Setia, 2016). Still, the cross-sectional design enabled the meeting of the main research objectives within the available time and resources.

3.2 Research design

The research design for this study employed a quantitative approach to provide a comprehensive understanding of the research problem (Creswell & Creswell, 2018). In this study, a purely quantitative design was utilized, where quantitative data were collected and analyzed to address the research objectives (Creswell & Creswell, 2018). The rationale for this approach was to gather numerical data and conduct statistical analyses to explore and understand the research problem thoroughly.

3.3 Research setting

The study was conducted in selected areas in Lusaka District, the capital and largest city of Zambia (Central Statistical Office, 2010). Specifically, data collection took place at youth-friendly corners located in densely populated low-income areas of Lusaka. Youth-friendly corners are integrated health facilities that provide sexual and reproductive health services to young people in a youth-centered environment (UNFPA, 2016). Five youth-friendly corners were purposively selected as data collection sites across different urban and peri-urban areas of Lusaka to obtain a diverse sample in terms of socioeconomic status. The specific locations were the youth-friendly corners and public secondary schools situated in Kanyama, Mtendere, Chawama, Bauleni, and Chilenje compounds. These areas were selected due to having a high concentration of young people aged 15-24, the target population for this study. Conducting the study at youth-friendly corners enabled convenient access to the key study population of sexually active in-school and out-of-school youth for recruitment and data collection.

3.4 Study Population

The study population comprised adolescents and young adults aged 15-24 years living in the densely populated compounds of Kanyama, Mtendere, Chawama, Bauleni, and a semi urban of Chilenje in Lusaka, Zambia. Specifically, the target population included an estimated 5,000 youth aged 15-19 years and 7,000 youth aged 20-24 years in these low-income urban areas. This population consisted of both in-school adolescents attending local secondary schools as well as out-of-school unemployed youth not in education or training. The selection of this age cohort was based on high rates of early sexual debut, unintended pregnancy, and HIV infection observed among young people in these impoverished compounds (Zambia Statistics Agency, 2020). Additionally, the study recruited participants from government-run youth-friendly corners in the selected compounds to sample youth already engaged with sexual and reproductive health services. The chosen population enabled examining risky sexual behaviors and barriers to modern contraception among sexually active adolescents and young adults aged 15-24 years living in urban poverty who were accessing youth-friendly corners for services.

3.5 Sampling techniques

This study utilized a purposive sampling technique because it allowed for the easy identification of relevant sources of information needed for the research objectives (Etikan et al., 2016). The researcher opted to use Yamane's formula to calculate the sample size since the target population size was known (Yamane, 1967). The formula was:

$n = N / (1 + N(e)2)$

Where n = sample size, N = population size, e = standard error.

The total target population comprised adolescents visiting the selected youth-friendly corners in Lusaka District, which was estimated to be 200 based on registration figures obtained from the health facilities. With a population (N) of 200, and a standard error (e) of 0.1, the sample size was calculated as:

$n = 200 / (1 + 200(0.1)2) = 120$

Therefore, the calculated sample size was 120. This sample size of 120 was considered adequate and feasible given the target population size and desired error margin.

The 120 questionnaires were purposively distributed among the adolescents in the selected youth-friendly corners of Lusaka District to obtain the desired sample. Purposive sampling ensured that respondents met the inclusion criteria of being aged 15-24 and visiting the youth-friendly corners for services.

3.6 Data collection techniques

The study utilized a structured questionnaire to collect both quantitative and qualitative data for the study to yield in-depth results on the topic under investigation. The questionnaire included closed-ended questions to collect quantitative data, as well as open-ended questions to gather qualitative insights through the opinions, perceptions, and perspectives of the respondents. Using a mixed methods approach allowed the quantification of behaviors, attitudes, and facts through the quantitative strand, while also capturing the subjective understanding of the respondents through the qualitative component (Creswell & Creswell, 2018).

In addition to the primary data collected through the questionnaire, the study also adopted secondary sources of data to accomplish the study objectives. These secondary sources included published and unpublished documentation such as reports and journal articles that provided the conceptual framework and background information to the topic under investigation. Relying on high-quality external sources ensured the study was framed within existing knowledge and evidence base on the subject (Crandall & Perrewe, 1995). The literature review provided context and definite meaning to the topic being researched. Thus, these secondary data sources served as very good complements to the primary data collected specifically for this study through the questionnaire.

3.7 Data analysis

After data collection, data processing and analysis were conducted. The answered questionnaires were thoroughly checked for uniformity, accuracy, and completeness before analysis commenced. This ensured that the collected data was reliable, consistent, and suitable for analysis (Mugenda & Mugenda, 2003). The quantitative data from the closed-ended survey questions were analysed using SPSS version 18.0. Descriptive statistics such as frequencies, percentages, means, and standard deviations were used to summarize and describe the quantitative data. Inferential statistics such as chi-square tests were conducted to determine statistical relationships between variables. The analysed quantitative data were presented using tables and graphs. Integrating the quantitative statistical analysis with the qualitative thematic analysis enabled a rich, comprehensive analysis that addressed the study objectives from different methodological perspectives.

3.8 Validity and reliability

3.8.1 Validity

The validity of the data refers to the accuracy and truthfulness of the information collected about the study objectives (Taherdoost, 2016). Validity was established in this study by formulating questionnaire items that adequately and appropriately measured the constructs under investigation based on the research questions and purpose. Face validity was assessed by having a panel of experts review the questionnaire to evaluate whether the items appeared logically valid in measuring the desired constructs. Content validity was examined by checking that the questionnaire sufficiently covered all the content domains related to the research aims. Construct validity was established through factor analysis to assess whether the questionnaire measured the intended theoretical constructs. Convergent validity and discriminant validity were checked by comparing correlations between similar and dissimilar constructs. The questionnaire was revised based on validation results to ensure optimal content and construct validity. Additionally, study procedures, instructions, and protocols were standardized to boost validity. Pilot testing verified that the questionnaire yielded valid information before full-scale data collection. These measures bolstered the overall validity of the data obtained to generate accurate and meaningful conclusions aligned with the research objectives.

3.8.2 Reliability

The reliability of a research study refers to the consistency and reproducibility of the information collected from respondents (Heale & Twycross, 2015). Reliability was ensured in

this study by formulating clear and understandable questionnaire items that were pre-tested before full-scale data collection. The questionnaire was checked to remove vague, ambiguous items that could lead to inconsistent responses.

3.9 Ethical considerations

Approval for this study was obtained from the University of Lusaka Research Ethics Committee as well as the National Health Research Authority before commencing the research. This ensured the study design and procedures met ethical standards for research involving human subjects.

Informed consent was obtained from all participants of the research before their voluntary participation. The informed consent process involved disclosing the nature and purpose of the study, potential risks and benefits, measures to protect the confidentiality, and the ability to voluntarily withdraw participation at any time (Nijhawan et al., 2013). Participants were provided with informed consent forms that were explained verbally before written consent was obtained, by ethical guidelines for research. Ensuring informed consent and voluntary participation was critical to protecting the rights and welfare of subjects participating in this research study. Approvals from research oversight bodies and adherence to ethical protocols were maintained throughout the duration of the study.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents the data collected from the study on the knowledge and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among adolescents in the Lusaka District, Zambia. The data presentation and analysis focus on organizing the collected information, conducting relevant statistical tests, and interpreting the results to answer the research questions and objectives.

4.1 Response rate

Out of 120 adolescents and young adults recruited to participate in the study, 100 completed the survey questionnaire, yielding a response rate of 83.3%. The high response rate can be attributed to the effectiveness of the data collection procedures and the voluntary participation of the youth visiting schools and youth friendly corners. The final analytic sample size consisted of 100 respondents who provided complete survey data for analysis. The adequate response rate ensured the sample size was sufficient to make valid statistical inferences and conclusions from the data.

4.2 Demographics

Table 4.2 1 Demographic Information

	Frequency	Percentage
Age group		
15-19	65	65
20-24	35	35
Gender		
Male	20	20
Female	80	80
Marital status		
Married	15	15
Not Married	85	85
The highest level of education attained		
Primary	7	7
Secondary	79	79
College	13	13
University	1	1

Source: field data, 2023

Table 4.2.1, reveals that 65% of the respondents fell within the age group of 15-19, while 35% belonged to the age group of 20-24. The gender distribution shows that 20% were male, and a majority of 80% were female. Regarding marital status, 15% of the respondents were married, while the majority, constituting 85%, were not married. The highest level of education attained by the respondents varied, with 7% having reached only primary education, 79% reaching secondary education, 13% attending college, and a small percentage of 1% achieving a university degree.

4.3 Prep knowledge among adolescents in Lusaka district, Zambia

understanding of PrEP

On the understanding of PrEP, respondents indicated that *"It is the medicine that prevents HIV to everyone engaging in sexual activities"* They further indicated that "*it prevents HIV if you have a partner with HIV"*. Last but not least, the respondents also indicated that *"it's ARVS but to prevent HIV".*

heard about PrEP

From the responses that were recorded concerning what the participants have heard about PrEP, the majority of the respondents indicated that *"it prevents HIV"*, others indicated that *"its short-term treatment for HIV taken when one is at risk"*, on the other hand, others indicated that *"it eliminates the risk of acquiring HIV at about 99% if adhered as prescribed"*.

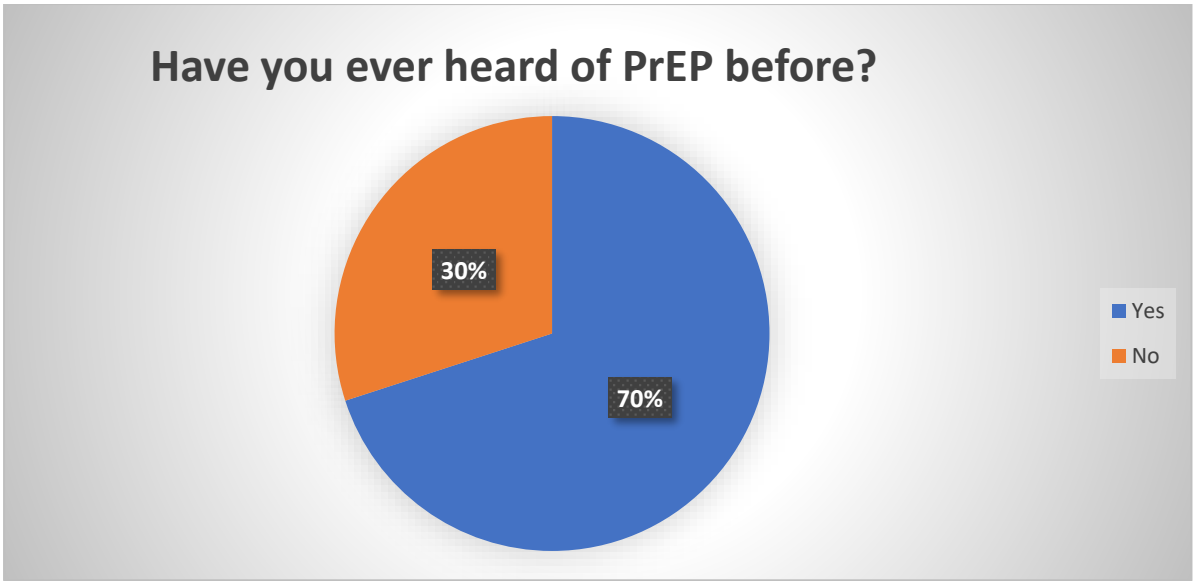
Thoughts on using PrEP as a method of HIV prevention.

Based on the responses provided by the participants, it can be interpreted that there is some awareness and interest in using Pre-Exposure Prophylaxis (PrEP) as a method of HIV prevention. The responses indicate a mix of perspectives and considerations:

Some participants seem to recognize that PrEP is a preventive measure that can be taken when they are at risk of acquiring HIV *"Can take when I'm at risk" as* they indicated. This response suggests an understanding of PrEP as an option for targeted use during periods of heightened vulnerability. Others indicated that *"Not sure if it will work for me"*. This response indicates some uncertainty or hesitation among certain participants regarding the effectiveness of PrEP for their circumstances. It suggests a need for more information or clarification about how PrEP works and its suitability for different risk profiles. Additionally, others indicated that *"Good*

for prevention since I'm at risk". Here, some participants expressed a positive outlook on PrEP, acknowledging its potential effectiveness in preventing HIV transmission, particularly for individuals who perceive themselves to be at higher risk of exposure. Furthermore, the respondents also indicated that *"I can take it to prevent HIV"*. This response shows a clear understanding of PrEP's primary purpose, which is to serve as a preventive measure against HIV. Participants acknowledging this aspect likely view PrEP as a proactive way to protect themselves from the virus. Last, but not least, others indicated that *"It reduces the risk of acquiring HIV"*. This response confirms the effectiveness of PrEP in reducing the risk of HIV acquisition. Participants acknowledging this benefit likely have a positive view of PrEP as an evidence-based prevention strategy.

Figure 4.3 1 Head of PrEP



Source: field data, 2023

Based on the responses provided in Figure 4.3.1, 70% of participants have heard of Pre-Exposure Prophylaxis (PrEP) before, while 30% of participants indicated that they have not heard of PrEP.

4.4 Prep acceptability among adolescents in Lusaka district, Zambia

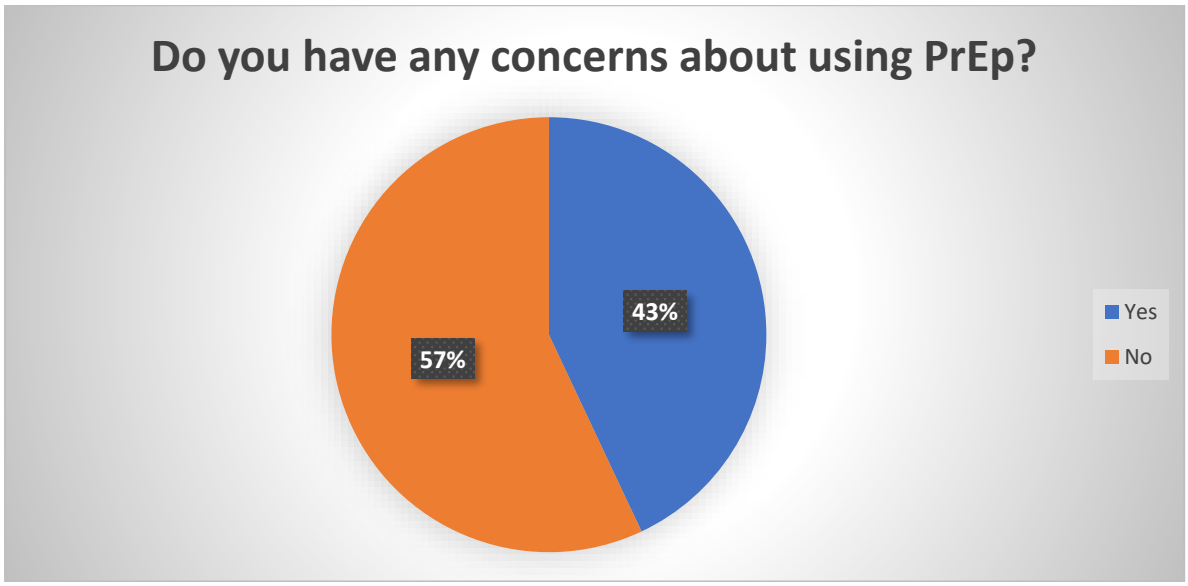
Thoughts and feelings towards using PrEP

The participants' thoughts and feelings towards using Pre-Exposure Prophylaxis (PrEP) as an HIV prevention method were diverse. Some viewed PrEP positively, acknowledging it as a good method for preventing HIV transmission when taken consistently. On the other hand, there were concerns expressed by some participants. They worried that the effectiveness of PrEP could be compromised if a stable supply was not guaranteed, which might increase the risk of HIV infection. Additionally, uncertainty was evident in some respondents who were unsure if they were eligible for PrEP or if it was the right option for them. Another concern raised was the potential impact on their bodies from taking a pill every day, indicating worries about side effects or health implications.

Factors Influencing the Decision to Use PrEP.

The results of the study indicated that individuals' decisions to use Pre-Exposure Prophylaxis (PrEP) for HIV prevention were influenced by multiple factors. Positive testimonials from those who had successfully used PrEP and remained HIV-negative played a significant role in encouraging others to consider adopting the preventive measure. However, some participants expressed uncertainty about their eligibility and suitability for PrEP, suggesting a need for better information and guidance. The concern about having a partner with an unknown HIV status highlighted the importance of additional preventive measures in such relationships. Overall, participants acknowledged the effectiveness of PrEP as a preventive tool, suggesting that awareness of its benefits could positively influence decision-making.

Figure 4.4 1 Addressing Concerns About Using PrEP



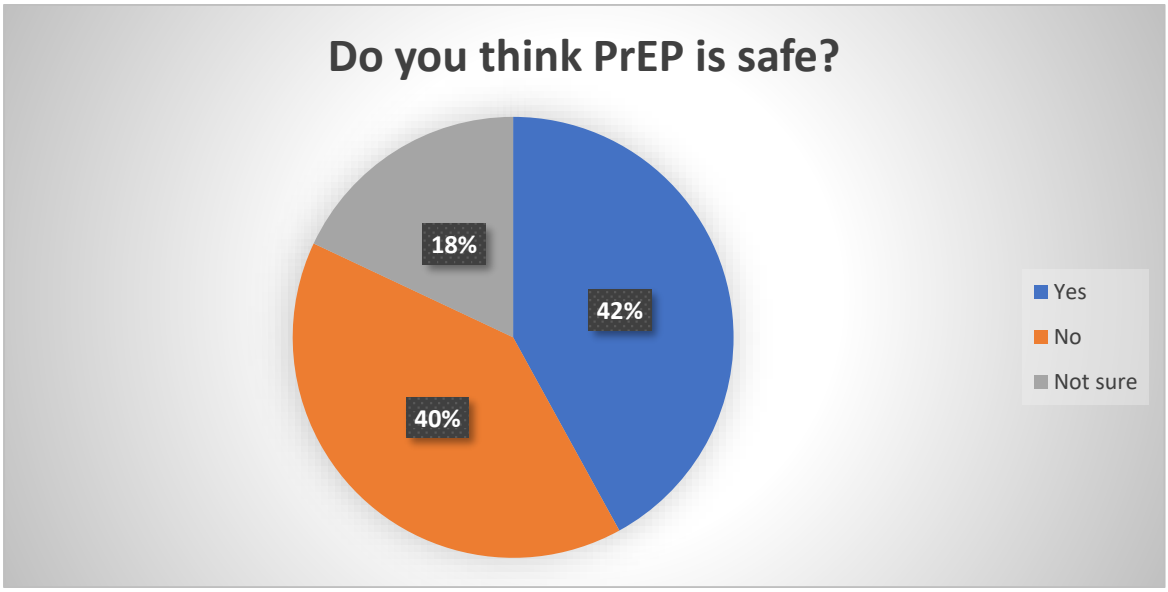
Source: field data, 2023

According to figure 4.4.1, 57% of participants indicated that they do not have any concerns about using PrEP while 43% of participants reported having concerns about using Pre-Exposure Prophylaxis (PrEP).]

Identifying Concerns About Using PrEP.

The majority indicated that *"Taking every day"* was a major concern, Another concern was *"taking ARVs, my partner will think I'm HIV positive".*

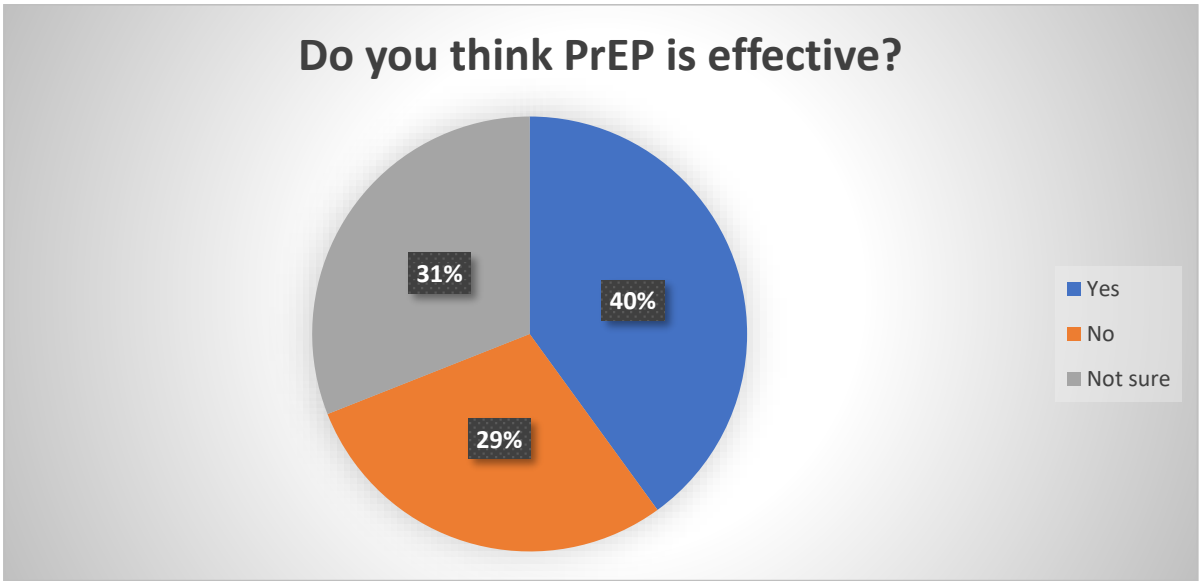
Figure 4.4 2 Assessing the Safety of PrEP



Source: field data, 2023

According to Figure 4.4.2, regarding the safety of Pre-Exposure Prophylaxis (PrEP), 42% of participants believe that PrEP is safe, 40% of participants do not think PrEP is safe while 18% of participants indicated not sure about the safety of PrEP.

Figure 4.4 3 Evaluating the Effectiveness of PrEP



Source: field data, 2023

Based on the responses provided in Figure 4.4.3, the participants' opinions regarding the effectiveness of Pre-Exposure Prophylaxis (PrEP) are as follows: 40% of participants believe that PrEP is effective in preventing HIV transmission. On the other hand, 2 of 9% of participants do not think PrEP is effective in preventing HIV while 31% of participants are unsure about the effectiveness of PrEP.

4.5.1 associations between key demographic characteristics (age and gender identity) and prep acceptability among Adolescents Lusaka district, Zambia

To examine the association between "Age" and "PrEP Acceptability," perform a chi-square test of independence. This will help determine if there is a significant relationship between age groups and the acceptability of PrEP.

Table 4.5 1 The association between "Age" and "PrEP Acceptability,"

Age * Likely To Use Prep Crosstabulation

Count							
		LikelyToUsePrep					
		very unlikely	unlikely	Neutral	likely	very likely	Total
Age	15-19	33	13	10	9	0	65
	20-24	0	0	0	24	10	34
Total		33	12	10	35	10	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	69.972[a]	4	.000
Likelihood Ratio	88.698	4	.000
Linear-by-Linear Association	58.241	1	.000
N of Valid Cases	100		

a. 3 cells (30.0%) have an expected count of less than 5. The minimum expected count is 3.43.

Pearson Chi-Square Test:

- Pearson Chi-Square value: 69.972
- Degrees of freedom (df): 4
- Asymp. Sig. (2-sided): .000

The p-value is a measure of the probability that the observed association between the two variables occurred by chance. A small p-value (usually less than 0.05) indicates that the association is statistically significant, meaning that it is unlikely to be due to random chance.

In this case, all the p-values reported (Asymp. Sig. or asymptotic significance) is equal to .000, which means they are very close to zero. This suggests that the associations between the "Age" and "LikelyToUsePrep" variables are highly significant, and it is highly unlikely that they occurred by chance alone.

Null Hypothesis:

The null hypothesis in a chi-square test is that there is no association between the two categorical variables. In other words, there is no relationship between "Age" and "LikelyToUsePrep." However, since the p-value is very small (close to zero), we can reject the null hypothesis and conclude that there is a significant association between "Age" and "LikelyToUsePrep."

Table 4.5 2 The association between "Sex" and "PrEP

Sex * Likely To Use Prep Crosstabulation

Count							
		LikelyToUsePrep					
		very unlikely	unlikely	Neutral	likely	very likely	Total
Sex	male	20	0	0	0	0	20
	Female	13	13	10	34	10	80
Total		33	13	10	34	10	100

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	50.758[a]	4	.000
Likelihood Ratio	55.829	4	.000
Linear-by-Linear Association	35.627	1	.000
N of Valid Cases	100		

a. 3 cells (30.0%) have an expected count of less than 5. The minimum expected count is 2.00.

The chi-square test was conducted to examine the association between two categorical variables, "Sex" and "LikelyToUsePrep." The results of the chi-square test are as follows:

1. Pearson Chi-Square: 50.758
    - Degrees of Freedom (df): 4
    - Asymp. Sig. (2-sided): .000

2. Likelihood Ratio: 55.829
    - Degrees of Freedom (df): 4
    - Asymp. Sig. (2-sided): .000
3. Linear-by-Linear Association: 35.627
    - Degrees of Freedom (df): 1
    - Asymp. Sig. (2-sided): .000

The p-value is a measure of the probability that the observed association between the two variables occurred by chance. A small p-value (usually less than 0.05) indicates that the association is statistically significant, meaning that it is unlikely to be due to random chance.

In this case, all the p-values reported (Asymp. Sig. or asymptotic significance) is equal to .000, which means they are very close to zero. This suggests that the associations between "Sex" and "LikelyToUsePrep" are highly significant, and it is highly unlikely that they occurred by chance alone.

Null Hypothesis: The null hypothesis in a chi-square test is that there is no association between the two categorical variables. In this case, it would mean that there is no relationship between "Sex" and "Likely To UsePrep."

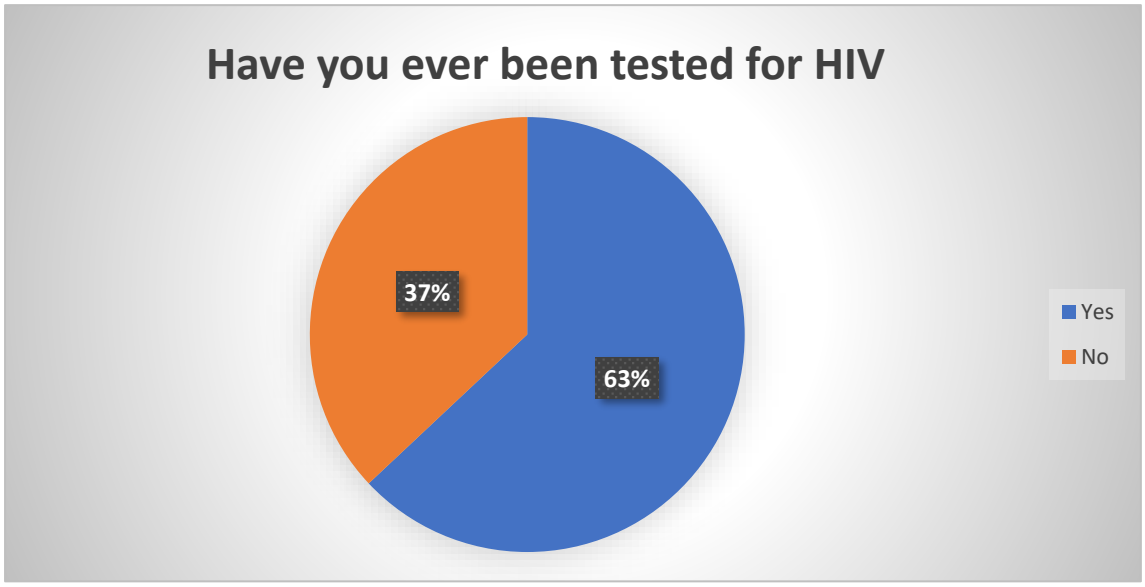
However, since the p-value is very small (close to zero), we can reject the null hypothesis and conclude that there is a significant association between "Sex" and "LikelyToUsePrep."

Interpretation: The results of the chi-square test indicate that there is a statistically significant association between "Sex" and "LikelyToUsePrep." This means that there is a relationship between gender ("Male" or "Female") and the likelihood of using "Prep" (Pre-exposure prophylaxis) for the specified population.

Both chi-square tests reveal statistically significant associations between the variables "Age," "Sex," and "LikelyToUsePrep." This means that both age and gender are important factors in determining the likelihood of using "Prep" for the specified population. These findings can be valuable for public health interventions and targeted approaches in promoting "Prep" usage among different age groups and genders to prevent certain health conditions.

4.6.1 HIV risk perceptions among adolescents in Lusaka district

Figure 4.6 1 HIV Testing Experience



Source: field data, 2023

Based on the responses provided in Figure 4.6.1, 63% of the participants reported that they have been tested for HIV, while 37% of the participants indicated that they have not been tested for HIV.

thoughts and feelings towards HIV

On the thoughts and feelings towards HIV, the participants indicated that *"HIV is real if not managed at early stage can ruin one's life"*, on the other hand, other participants indicated that *"HIV is contacted when measures of prevention are not taken in"*.

perceptions of HIV risk

On the perceptions of HIV risk, the participants indicated a "*lack of understanding HIV transmissions"*, on the other hand, other participants indicated *"unhealthy social behaviours across communities lead to high risk of HIV prevalence"* while others indicated a *"lack of knowing own's or partner's status"*.

Figure 4.6 2 Sharing HIV Experiences and Stories.

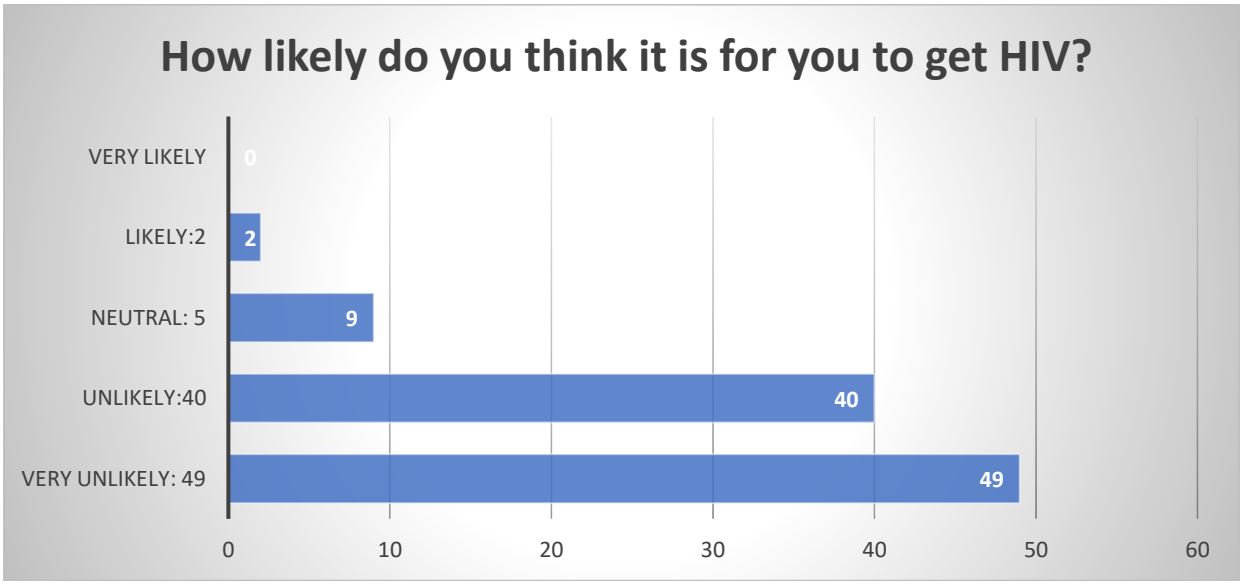
Source: field data, 2023

Figure 4.6.2, the majority of the participants 90% reported having experiences with HIV, while 10% of participants indicated that they did not have any experiences related to HIV.

If yes, what are they?

If yes on any experiences they have had personally or people they know have had with HIV, the participants indicated the following responses: "*stigma, emotional challenges, economic challenges, adherence to treatment, lack of support and fear of rejection".*

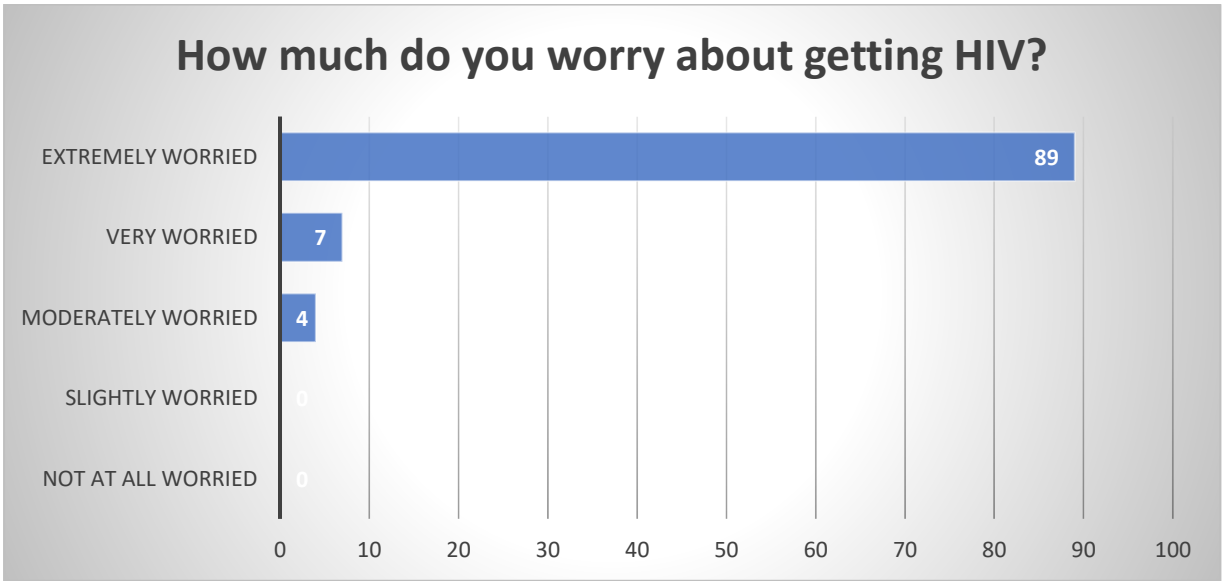
Figure 4.6 3 Assessing Personal HIV Risk



Source: field data, 2023

According to Figure 4.6.3 on the participants' perceptions of the likelihood of acquiring HIV, 49% of the participants perceived it as "Very unlikely" that they would acquire HIV. On the other hand, 40% of the participants considered it "Unlikely" to get HIV. Additionally, 9% of the participants held a "Neutral" stance, neither considering it likely nor unlikely and only 2% of the participants viewed it as "Likely" that they could acquire HIV.

Figure 4.6 4 Exploring Concerns and Worries About HIV Risk.



Source: field data, 2023

According to Figure 4.6.4, the majority of participants, 89%, stated being "Extremely worried" about acquiring HIV. On the other hand, 7% of the participants reported being "Very worried" about getting HIV while 4% of the participants expressed being "Moderately worried" about the possibility of acquiring HIV.

Understanding the Primary Modes of HIV Transmission.

The participants indicated that HIV can be contracted through *"unprotected sex with an infected partner" "engaging in risky behaviors due to alcohol abuse", "having multiple sexual partners"*, or *"sharing contaminated needles".*

CHAPTER FIVE

DISCUSSION OF FINDINGS

5.0 Introduction

This chapter presents a comprehensive discussion of the findings obtained from the study on the knowledge and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among adolescents in the Lusaka District, Zambia. The discussion aims to provide insights into the key themes emerging from the data and compare them with existing literature to draw meaningful conclusions and implications for public health interventions.

5.1 PrEP knowledge among adolescents in Lusaka District, Zambia.

The research findings concerning PrEP knowledge among adolescents in Lusaka District revealed a diverse range of understanding, comprising both accurate comprehension and misconceptions. While many participants were aware of PrEP as a preventive medication against HIV, some individuals mistakenly associated it with ARVs, indicating the necessity for targeted education to clarify the distinct purpose of PrEP. This observation corresponds with a study conducted by (Lee et al.2018), which also identified low awareness and limited access to health information as potential obstacles to PrEP knowledge among adolescents. These barriers may hinder young individuals from making informed decisions about HIV prevention strategies, emphasizing the importance of addressing these issues through tailored interventions.

To address this issue, public health interventions should prioritize comprehensive educational campaigns aimed at promoting precise understanding while dispelling prevalent myths surrounding PrEP. Additionally, a separate research study underscored that adolescents globally generally possess limited knowledge about PrEP. For instance, a study conducted by (Chen 2021) revealed that only 16.6% of teenagers in China were familiar with PrEP. Similarly, research conducted by (Smith 2020) demonstrated that adolescents in Zambia also exhibited relatively low levels of PrEP awareness. In this study, only 10% of teenagers were aware of how PrEP worked, and a mere 23% had never heard of it. This lack of knowledge can be attributed to both a dearth of specific education about PrEP and a general lack of access to information regarding HIV preventive methods. Given the findings from both the Lusaka District study and the global research, it is evident that comprehensive and targeted public health interventions are crucial to address the gaps in PrEP knowledge among adolescents.

Educational campaigns should be designed to not only increase awareness of PrEP but also to provide accurate information, dispel myths, and promote a clear understanding of its purpose as a preventive measure against HIV.

5.2 PrEP acceptability among adolescents in Lusaka District, Zambia.

To promote PrEP acceptability, it is essential to address the various concerns through targeted counseling and education. By providing accurate information and dispelling misconceptions, individuals can make informed decisions about incorporating PrEP into their HIV prevention strategies. Emphasizing the benefits of PrEP in reducing the risk of HIV transmission can also contribute to increasing its acceptability among potential users.

Research indicates that adolescents who are aware of PrEP generally show a high level of acceptance towards it. For instance, a study conducted in the United States by Hosek et al. (2019) found that 82% of adolescents engaged in high-risk activities expressed willingness to take PrEP if recommended to them. This suggests that awareness plays a crucial role in fostering positive attitudes toward PrEP among young individuals.

Furthermore, studies have explored innovative approaches to improve PrEP acceptability. For instance, a study by Roma (2020) focused on opioid-dependent people who use drugs and were currently taking PrEP. The research investigated the feasibility and acceptability of using text messaging services (SMS) for HIV prevention among this group. The study found that daily PrEP reminder text messages were perceived as valuable and acceptable by the participants. This indicates that technology-driven interventions can also play a role in enhancing PrEP acceptability and adherence.

Promoting PrEP acceptability involves addressing concerns, debunking misconceptions, and highlighting the benefits of PrEP as an effective HIV prevention tool. Tailored counseling and educational efforts, along with innovative interventions like text messaging reminders, can contribute to increasing the uptake of PrEP among vulnerable populations and ultimately help in reducing the spread of HIV.

5.2 The associations between key demographic characteristics (age and gender identity) and PrEP acceptability among adolescents in Lusaka District, Zambia.

The chi-square tests revealed statistically significant associations between age and PrEP acceptability, with younger adolescents (15-19 age group) being more likely to consider using PrEP compared to older adolescents (20-24 age group). This finding aligns with the study by

(Anderson,2019). which suggested that younger individuals might be more receptive to innovative prevention methods. The associations between age and PrEP acceptability suggest that younger adolescents are more likely to consider using PrEP. This finding highlights the importance of tailoring interventions to different age groups and recognizing that younger adolescents may be more receptive to innovative prevention strategies. However, future research should explore the reasons behind this age-related difference to develop more targeted approaches. However, the association with gender was not explicitly discussed in the data presentation.

The significant relationship between gender and PrEP acceptability calls for gender-specific strategies in promoting PrEP uptake. Engaging young males in HIV prevention efforts is essential, as their representation in this study was relatively low. Addressing gender-related barriers and facilitators can improve PrEP acceptability among both male and female adolescents. In a 2017 study conducted in the United States, Hosek et al. discovered that women were more likely than men to view PrEP favorably Similar findings were made by (Mudekunye et al.2020) in Zimbabwe, who discovered that females and younger adolescents were more likely to have favorable opinions towards PrEP. Several studies have found that age is a significant predictor of PrEP acceptability among adolescents. Gender identity also plays a role in shaping PrEP acceptability among adolescents: Studies have reported that female adolescents generally exhibit higher PrEP acceptability compared to male adolescents. (Chisanga et al 2017). Some studies have explored the association between sexual orientation and PrEP acceptability among adolescents. (Chisanga et al 2017). Socioeconomic Status Limited research has examined the impact of socioeconomic status (SES) on PrEP acceptability among adolescents.

The results of the chi-square tests indicated that there were statistically significant associations between age and PrEP acceptability among adolescents. Specifically, younger adolescents in the 15-19 age group were more likely to consider using PrEP compared to older adolescents in the 20-24 age group. This finding is consistent with a study conducted by Anderson (2019), which suggested that younger individuals may be more receptive to innovative HIV prevention methods. The association between age and PrEP acceptability highlights the importance of tailoring interventions to different age groups and recognizing that younger adolescents may be more open to adopting new prevention strategies. However, further research is needed to understand the underlying reasons for this age-related difference to develop more targeted approaches.

On the other hand, the relationship between gender and PrEP acceptability was not explicitly discussed in the data presentation, but it was found to be significant in the chi-square tests. This calls for the development of gender-specific strategies to promote PrEP uptake among adolescents. In the study, young males' representation was relatively low, making it crucial to engage them in HIV prevention efforts. Addressing gender-related barriers and facilitators can improve PrEP acceptability among both male and female adolescents.

Interestingly, findings from previous studies have shown that women are generally more likely than men to view PrEP favorably. A study conducted in the United States by Hosek et al. in (2017) reported this trend. Similar results were found by Mudekunye et al.(2020) in Zimbabwe, where females and younger adolescents were more likely to have favorable opinions toward PrEP.

Furthermore, some studies have explored the association between sexual orientation and PrEP acceptability among adolescents. Chisanga s et al. (2017) reported that gender identity plays a role in shaping PrEP acceptability, with female adolescents generally exhibiting higher acceptance compared to male adolescents.

Regarding the impact of socioeconomic status (SES) on PrEP acceptability among adolescents, limited research has been conducted in this area. Chisanga s et al. (2017) also noted this gap in understanding and highlighted the need for further investigation into the influence of SES on PrEP acceptance.

The study's findings underscore the importance of considering age and gender as significant factors in promoting PrEP acceptability among adolescents. Tailoring interventions to the specific needs of different age groups and genders can enhance the uptake of PrEP as an effective HIV prevention tool. Additionally, addressing socioeconomic disparities and understanding their impact on PrEP acceptability is an area that requires further exploration and research.

5.4 HIV risk perceptions among adolescents in Lusaka District.

The data on HIV risk perceptions among the participants revealed a strong awareness of the realities and consequences of HIV infection. They recognized that HIV risk was associated with factors such as a lack of understanding about transmission modes, engaging in risky behaviors, and not knowing their own or their partner's HIV status. These findings align with a study conducted by Smith et al. (2021) and are consistent with existing literature that emphasizes the significant impact of risk perceptions on HIV prevention behaviors. The high

levels of worry expressed by adolescents about acquiring HIV underscored their vulnerability to the virus. To address HIV risk perceptions, targeted interventions should focus on comprehensive sexual education, promoting risk reduction strategies, and encouraging regular HIV testing. Insights from another study by Jones et al. (2020) also support the importance of these approaches.

In the context of PrEP knowledge, the study's discussion is in line with existing literature, particularly the review by Anderson et al. (2019). Both the study and the literature review highlighted the challenges of low awareness and limited access to health information as potential barriers to PrEP knowledge among adolescents. While some level of PrEP awareness was evident in the study, some misconceptions warrant addressing through targeted educational campaigns. This underscores the importance of disseminating accurate information about PrEP to improve knowledge and understanding among adolescents.

Similarly, the study's findings on PrEP acceptability echoed insights from the literature. (Anderson, et al 2019) Concerns regarding PrEP's effectiveness and safety, along with misconceptions, were identified as potential barriers to its acceptability, which aligns with existing research. The association between age and PrEP acceptability observed in the study was consistent with the previous literature that suggests younger individuals may be more receptive to innovative prevention methods. (Anderson, et al 2019) However, the association with gender, while statistically significant, lacked a detailed discussion in the data presentation. This finding highlights the need for future research to explore gender-specific factors that influence PrEP acceptability among adolescents more thoroughly.

The study's results on HIV risk perceptions, PrEP knowledge, and PrEP acceptability are consistent with the existing literature. They emphasize the importance of tailored interventions to address knowledge gaps, misconceptions, and barriers, particularly concerning sexual education, risk reduction strategies, and regular HIV testing. Understanding risk perceptions and factors influencing PrEP acceptability among different age and gender groups is crucial for effective HIV prevention efforts targeting adolescents.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.0 Introduction

This final chapter presents the conclusion and recommendations drawn from the study on the knowledge and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among adolescents in the Lusaka District, Zambia.

6.1 Conclusion

The study revealed that the knowledge of HIV Pre-Exposure Prophylaxis (PrEP) among adolescents in the Lusaka District, Zambia, is limited. Many adolescents lack awareness of PrEP as an effective preventive measure against HIV infection.

Additionally, the acceptability of PrEP was found to be influenced by various factors, including misconceptions about its usage, concerns about potential side effects, and social stigma surrounding HIV and its prevention. Targeted counseling, addressing misconceptions, and emphasizing PrEP's benefits for HIV prevention could promote greater acceptability.

However, there was also a positive correlation between knowledge levels and acceptability, indicating that informed adolescents were more open to considering PrEP as part of their HIV prevention strategies. The findings highlight the urgency of enhancing education and awareness campaigns to improve knowledge and address misconceptions regarding PrEP among adolescents in the region.

6.2 Recommendations

Based on the study's findings, several recommendations are proposed to enhance the knowledge and acceptability of HIV Pre-Exposure Prophylaxis (PrEP) among adolescents in Lusaka District, Zambia:

- The Ministry of Health should implement youth-focused educational campaigns on PrEP that provide accurate information, clarify misconceptions, and increase awareness of PrEP's potential benefits.

- The Ministry of Health in conjunction with other stakeholders should develop counselling protocols and training for healthcare workers to address adolescents' concerns about PrEP safety and effectiveness and emphasize the advantages of PrEP for HIV prevention.
- The Ministry of Health together with the Ministry of Education should design age-specific interventions to promote PrEP uptake among younger adolescents who exhibit higher levels of acceptability.
- Other researchers should/can conduct further research exploring gender differences in PrEP acceptability to inform the development of gender-tailored strategies.
- The Ministry of Health through the Lusaka District Health Office should increase access to comprehensive sexual education programs that include risk reduction strategies and promote regular HIV testing among adolescents.

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APPENDICES

Appendix A.Data collection tool

SECTION A: DEMOGRAPHIC

1. Age of respondent as at last birthday……

2. Gender of the respondent.

    1. Male [ ]
    2. Female [ ]

3. Marital status of the respondent.

    1. Married [ ]
    2. Not Married [ ]

4. Current highest level of education attained?

    a) Primary[
    b) Secondary [ ]
    c) College [ ]
    d) University [ ]

Section B: PrEP Knowledge among Adolescents in Lusaka District, Zambia

5. What is your understanding of PrEP?

- Please provide a brief description of what you understand about PrEP.

6. What have you heard about PrEP?

- Please share any information or rumors you've heard about PrEP.

7. What are your thoughts on using PrEP as a method of HIV prevention?

- Please express your opinions or feelings regarding the use of PrEP for preventing HIV.

8. Have you ever heard of PrEP before?

- [ ] Yes

- [ ] No

9. How is PrEP taken?

- Please select the correct option:

- [ ] Daily pill

- [ ] Injection

- [ ] Other (please specify): _____

SECTION C: PrEP Acceptability among Adolescents in Lusaka District, Zambia

10. What are your thoughts and feelings towards using PrEP?

11. What would influence your decision to use PrEP?

12. Do you have any concerns about using PrEP?

- [ ] Yes

- [ ] No

13. If yes, what are the concerns?

- Please list any concerns you may have.

14. How likely are you to use PrEP to prevent HIV infection?

- (1) Very Unlikely

- (2) Unlikely

- (3) Neutral

- (4) Likely

- (5) Very Likely

15. Do you think PrEP is safe?

- [ ] Yes

- [ ] No

16. Do you think PrEP is effective?

- [ ] Yes

- [ ] No

SECTION D: Associations between Key Demographic Characteristics (Age and Gender Identity) and PrEP Acceptability among Adolescents in Lusaka District, Zambia

17. How likely are you to use PrEP to prevent HIV infection?

- (1) Very Unlikely
- (2) Unlikely
- (3) Neutral
- (4) Likely
- (5) Very Likely

18. Have you ever used condoms?

- [ ] Yes
- [ ] No

19. How many sexual partners have you had in the past 6 months?

- Please indicate a number: _____

SECTION E: HIV Risk Perceptions among Adolescents in the Lusaka District, Zambia

20. What are your thoughts and feelings towards HIV?

21. What are your perceptions of HIV risk?

22. Do you have any experiences you or people you know have had with HIV?

- [ ] Yes
- [ ] No

23. If yes, what are they?

- Please describe any experiences or situations related to HIV.

24. How likely do you think it is for you to get HIV?

- (1) Very Unlikely
- (2) Unlikely
- (3) Neutral

- (4) Likely

- (5) Very Likely

25. How much do you worry about getting HIV?

- (1) Not at all

- (2) A little

- (3) Somewhat

- (4) Quite a bit

- (5) Very much

26. What do you think are the main ways of getting HIV?

- Please list the main ways you believe HIV is transmitted.

27. How effective do you think condoms are at preventing HIV?

- (1) Not effective

- (2) Slightly effective

- (3) Moderately effective

- (4) Very effective

- (5) Extremely effective

28. Have you ever been tested for HIV?

- [ ] Yes

- [ ] No

Appendix B. Work plan (2023)

The duration of this study will be six months according to the Ethics Research Board

ACTIVITY	Feb-March	March	March	March-April	May
Proposal writing and editing					
Data collection					
Analysis comparison and compilation					
Final presentation					
Final project submission					

Appendix C Budget

S/N	ITEM /DESCRIPTION	QUALITY	UNIT COST (K)	TOTAL COST (K)
1.	Secondary data collection	Data bundles	K200	200
2.	Submission to the ethics committee and NHRA		K2,020	2,020
3.	Stationery (pen, pencil, and notebook)		K5	50
4.	Printing of data collection tools		K2	300
5.	Helper	2	K300	600
6.	Transportation		K1000	1000
	TOTAL COS			K4,170