KNOWLEDGE, ATTITUDES AND PRACTICES TOWARD HIV/AIDS PREVENTION AMONG SECONDARY SCHOOL STUDENTS IN RUANGWA, TANZANIA

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A DISERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF MONITORING AND EVALUATION (MAME)

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CERTIFICATION

The undersigned certifies that he has read and hereby recommends for acceptance by Open University of Tanzania a dissertation entitled **"Knowledge, Attitudes and Practices toward HIV/AIDSs Prevention among Secondary Students in Ruangwa District"** in partial fulfillment of the requirements for the degree of Master of Monitoring and Evaluation (MAME) of the Open University of Tanzania.

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Date

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DECLARATION

I, **Scola Anilozi Mwalyanzi,** hereby declare that the work presented in this dissertation is original. It has never been presented to any other University or Institution. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally mine. It is hereby presented in partial fulfilment of the requirement for the degree of Master of Monitoring and Evaluation (MME) of the Open University of Tanzania.

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Signature

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Date

DEDICATION

This dissertation is dedicated to my beloved late grandmother, Bialess Ngonella, who raised me and laid the foundation of my education and career. To my mother, Agness Mgallah, who gave birth to me as her firstborn, and to my husband, Dr. Epafra Luka Mwanja, who gave me time and encouragement during my studies. I also dedicate this to my children, Camilla Epafra Mwanja and Chellvan Epafra Mwanja, who tolerated their mother's studies. May God bless you all.

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ABSTRACT

Prevention and control of HIV infection and acquired immune deficiency syndrome (AIDS) is recognized as a national priority in Tanzania. This study aimed to assess the levels of Knowledge, attitudes and practices towards HIV/AIDS Prevention among Secondary School Students in Ruangwa district in Lindi, Tanzania. A cross-sectional study was conducted in five (5) randomly selected secondary schools in Ruangwa. Data was collected using a questionnaire designed to measure the student's level of knowledge, attitude and practice towards HIV/AIDS. The data was analysed using Statistical Packages for Social Science (SPSS) version 20.0. Results were summarized using the frequencies, percentages and means and presented in charts and tables. The findings generally showed that the majority of students (82.1%) knew how HIV is transmitted and several students (71.7%) knew at least one method of HIV prevention. Furthermore, the results show that several students (50.1%) indicated that teachers at school were the main source of information about HIV/AIDS and its prevention. The results on sexual practices show that some students (46.8%) reported to have experienced sexual intercourse. The peak age of first sexual intercourse is 14 years. These results provide valuable insights into the knowledge, attitudes, and practices of secondary school students in Ruangwa district regarding HIV/AIDS prevention. The relatively high levels of knowledge about HIV transmission and prevention, coupled with the reliance on teachers as the primary source of information, highlight the crucial role of the education system in shaping the students' understanding of HIV/AIDS. The findings suggest a need to strengthen the capacity of the education system to deliver comprehensive, age-appropriate, and effective HIV/AIDS education. Similarly, there is a need to improve access to youth-friendly sexual and reproductive health services to address the high levels of early sexual activity - effectively promote HIV/AIDS prevention and improve the overall health and well-being of this vulnerable population.

***Keywords**: Knowledge, altitude and practices; Secondary school students; Human immunodeficiency virus/acquired immune deficiency syndrome.*

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LIST OF ABBREVIATIONS

AGYW	Adolescence Girls and Young Women
AIDS	Acquired Immunodeficiency Syndrome
ARV	Anti-Retro Viral
CDC	Centers of Disease Control
HIV	Human Immunodeficiency Virus
NACP	National AIDS Control Programme
MTCT	Mother to Child Transmission
MSM	Men who have Sex with Men
PLHIV	People Living with HIV
TACAIDS	Tanzanian Commission of Acquired Immunodeficiency Syndrome
VCT	Voluntary HIV Counselling and Testing
WHO	World Health Organization
TDHS	Tanzania Demographic Health Survey
UN	United Nations
USA	United States of America
STDs	Sexual Transmitted Disease

CHAPTER ONE

INTRODUCTION

1.1. Background

Acquired immunodeficiency syndrome (AIDS) is a chronic infectious disease caused by human immunodeficiency virus (HIV). The syndrome is characterized by a spectrum of clinical presentation, starting from primary infection with or without the acute symptoms. This is typically followed by a relatively prolonged asymptomatic phase, after which most patients progress to advanced and life-threatening stages of the disease. Globally, the primary mode of HIV/AIDS transmission is through heterosexual contact, especially in developing nations. Other transmission routes include the transfusion of infected blood and blood products, occupational exposure, prenatal transfusions, unprotected sexual encounters (82.1%), mother-to-child transmission (antenatal, perinatal, and postnatal), and the transfer of infected blood, among others. However, the two most significant risks for HIV infection are having sexual relations with multiple partners and having sexually transmitted diseases (STDs) (Teshale et al., 2021).

AIDS was initially identified in the USA in 1981 in homosexual males, with five individuals showing symptoms of *Pneumocystis carinii* pneumonia and 26 others exhibiting Kaposi sarcoma related to the virus. The HIV was isolated from patients experiencing lymphadenopathy in 1983 and 1984, and it was definitively shown to be the cause of AIDS (Vergis & Mellors, 2000). The most impacted demographic is individuals of reproductive age (15-24). This youth group encompasses the time from the onset of puberty until the age of 24. During this period, individuals typically

reach maturity, enter the workforce, marry, and develop financial and psychological independence, stability, integrity, and compassion (Teshale et al., 2021).

The National AIDS Control Program outlines various strategies to prevent HIV transmission. These strategies include extensive education and awareness campaigns, practicing safe sex through condom use, abstinence, fidelity, safe blood transfusions, and administering antiretroviral medications to prevent mother-to-child transmission (MTCT) of HIV (NACP surveillance report, 2003).

Globally, heterosexual intercourse is responsible for the majority of HIV infections, and the presence of other sexually transmitted infections (STIs), particularly those that cause genital ulcers, increases the risk of transmission. Most individuals newly infected with HIV in Sub-Saharan Africa contract the virus through unprotected heterosexual sex (including commercial sex) or as infants from their mothers during childbirth or breastfeeding (Okano et al., 2020).

Vertical transmission is the primary route of HIV infection in children. Studies in Europe indicate that, in the absence of intervention, approximately 15% of infants born to HIV-positive mothers may become infected, with rates reported as high as 40% in Africa and the USA (Teshale et al., 2021). Mother-to-child transmission of HIV is associated with advanced disease in the mother and high maternal viral load where the risk increases during labour (prolonged labour and premature rupture of membranes) and during delivery (Teshale et al., 2021).

Sub-Saharan Africa has been devastated by the HIV/AIDS epidemic. While only 10% of the global population resides in sub-Saharan Africa, about 70% of all HIV-infected adults and children are located in this region (Moyo et al., 2023). Heterosexual transmission is the most common mode of infection, and sub-Saharan Africa is the only area where more women than men are infected (Taha, 2011).

The sexual behavior pattern in which young women engage in relationships with older men, combined with the high vulnerability of very young women, has led to alarmingly high infection rates among young women in certain regions of Africa. East African countries were the first to witness a significant prevalence of HIV, with current adult prevalence rates around 8-10% (World Health Organization, 2011). In two of these countries, Kenya has a rate of 4.9% and Somalia 0.1%, both of which seem to be increasing. In contrast, West Africa has been comparatively less impacted by HIV, with most countries reporting adult prevalence rates of less than 3% (Ahmed et al., 2010; Magadi et al., 2021).

According to Tanzania Demographic Health Survey of (2010), the main method of HIV transmission in the country continues to be unprotected heterosexual intercourse (Tripathi and El Krekshi, 2017). This transmission route accounts for approximately 80% of all new infections. Mother-to-child transmission is estimated to represent around 18% of new cases. However, about 1.8% of young individuals aged 15-24 who reported never having had sex were found to be HIV positive, indicating that they likely contracted the virus through blood transfusions, unsafe injections, or traditional practices such as male circumcision or female genital cutting (Ministry of

Health (MoH)[Tanzania mainland], Ministry of Health [Zanzibar], National Bureau of Statistics(NBS), Office of the Chief Government Statistician (OCGS), 2010).

In Lindi, the prevalence of HIV is about 2.9% which is lower compared to regions like Kagera, Iringa, and Mbeya. In Ruangwa District Council HIV/AIDS transmission increased from 3.7% to 4.3%, which is above the regional prevalence rate (Ministry of Health (MoH)[Tanzania mainland], Ministry of Health [Zanzibar], National Bureau of Statistics(NBS), Office of the Chief Government Statistician (OCGS), 2020). Unfortunately, most young people aged 15-24 who are affected more are in secondary schools. In response to this, this study seeks to assess knowledge, altitude and practices towards HIV/AIDS prevention among secondary students in Ruangwa district of Tanzania.

1.2. Problem Statement

Globally, in 2021, 38.8 million people were living with HIV globally, with 36.0 million of them being adults and 1.7 million children aged 0–14 years. Notably, women and girls made up 53% of all individuals living with HIV (World Health Organization (WHO), 2021). Adolescent girls and young women (AGYW) aged 15–24 had a 60% higher rate of HIV infection compared to their male counterparts in the same age group (Mensi et al., 2023). Additionally, approximately 1.5 million people were newly infected with HIV, with adolescents accounting for 50% of these new cases. Every week, around 5,000 adolescents become infected with HIV (Geneva, 2023).

In Sub-Saharan Africa, adolescents make up 10% of the total population but account for approximately 25% of all HIV infections. Furthermore, six out of seven new HIV infections among adolescents aged 15–19 occur in girls. This indicates that adolescents continue to face a higher risk of HIV infection (World Health Organization (WHO), 2021).

HIV counselling and testing services are crucial for the prevention, treatment, care, and support of HIV (Bekele and Fekadu, 2020). In 2014, the United Nations (UN) committed to ending AIDS by the end of 2020, endorsing the 90–90–90 targets, which stipulate that at least 90% of people living with HIV (PLHIV) should know their status, 90% of those diagnosed should be on antiretroviral treatment (ART), and 90% of those on ART should achieve viral load suppression (Judd et al., 2016). Increasing access to and uptake of HIV testing is vital for meeting the first two targets. The World Health Organization (WHO) also recommends annual testing in areas with high HIV prevalence (Heri et al., 2021).

Tanzania is experiencing an HIV epidemic, with an estimated prevalence of about 4.8% among individuals aged 15–49 years in 2019. The prevalence of HIV among adolescent girls and young women in Tanzania is 6.2%, compared to 3.7% for their male counterparts (Mengesha et al., 2023). The disparity in HIV prevalence by sex is particularly pronounced among young people, with young women aged 20–24 being five times more likely to be infected than men in the same age group. The country has made significant progress in HIV testing and counseling, with the Tanzania Health Impact Survey reporting that 82.7% of adults (aged 15 and older) living with

HIV were aware of their status: 84.8% of women and 78.4% of men. Individuals were considered aware if they reported their HIV-positive status or had detectable antiretroviral (ARV) levels in their blood. Among adults living with HIV who knew their status, 97.9% were on ART, including 98.4% of women and 96.7% of men. Individuals were classified as being on ART if they reported current ART use or had detectable ARVs in their blood. Regarding viral load suppression, 94.3% of adults on ART achieved this, with 94.9% of women and 92.9% of men reaching viral load suppression (Tanzania National Bureau of Statistics, 2023).

In Lindi, the prevalence of HIV is about 2.9% which is lower compared to the regions like Kagera, Iringa, and Mbeya. Studies have found that Ruangwa District Council, HIV/AIDs transmission increasing from 3.7% to 4.3% (Ministry of Health (MoH)[Tanzania mainland], Ministry of Health [Zanzibar], National Bureau of Statistics(NBS), Office of the Chief Government Statistician (OCGS), 2020). Young people aged 15-24 are affected more and most of them are in secondary schools. There remains an unmet need for effective HIV prevention strategies among adolescents' children and understanding knowledge, attitude and practices on HIV/AIDS prevention. This study explored the knowledge, altitude and practices on HIV/AIDS prevention among the secondary students in Ruangwa district.

1.3. Rationale

Knowledge concerning HIV/AIDS is very important in the prevention and control. Knowledge can change people's behavior which is very crucial in the fight against HIV/AIDS. But sometimes it requires more than knowledge about a disease to

change people's behavior since different cultural beliefs and other factors may alter the attitude of people towards certain given information. Knowledge and attitude have great impact on the practice of a particular behavior (Temu et al., 2008). It has been found that despite the majority of youth knowing HIV/AIDS nation-wise, still don't practice safe sex. Therefore, it is very important to understand why this happens. There might be several reasons that cause this situation to occur, such as cultural practices, religious beliefs, economic factors and others of the like.

This study assessed the knowledge, altitude, and practices of secondary school students in Ruangwa district regarding HIV/AIDS prevention. The observations and findings will serve as a basis for further tailored approaches to strategic programs to prevent HIV/AIDS transmission among the students in the region.

1.4. General Objectives

To assess the levels of knowledge, attitudes and practices towards HIV/AIDS prevention among secondary school students in Tanzania

1.4.1. Specific Objectives

i. To examine the extent of understanding of HIV/AIDS and its prevention among secondary school students in Ruangwa district.
ii. To examine the attitude of secondary school students towards HIV/AIDS prevention in Ruangwa district.
iii. To evaluate the level of awareness of HIV control measures/practices among secondary school students in Ruangwa district.

1.5. Research Questions

Hence, this study is expected to answer the question as

i. What is the level of knowledge on HIV/AIDS and its control among secondary school students in Ruangwa district?

ii. What is the attitude of secondary school students in Ruangwa district towards HIV/AIDS control?

iii. What is the level of awareness of HIV control measures/practices among secondary school students in Ruangwa district?

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter presents a literature review of various concepts pertinent to the study, establishing its background. It also includes both theoretical and empirical analyses of the relevant literature. Finally, the chapter identifies the research gap and outlines the conceptual framework of the study.

2.2. Conceptual Definition

2.2.1. Human immunodeficiency virus (HIV)

HIV is a lentivirus belonging to the retrovirus family. The virus attacks and damages the immune system making infected individual susceptible to various other infections and certain cancers that can ultimately lead to death. Specifically, HIV targets and destroys CD4 cells, compromising a person's immunity to opportunistic infections and some types of cancer.

2.2.2. Acquired immune deficiency syndrome (AIDS)

According to the World Health Organization (WHO), (2021), Acquired immune deficiency syndrome (AIDS) is a set of syndrome caused by the HIV. A person is diagnosed with AIDS when their immune system becomes too weak to combat infections, leading to the development of specific symptoms and illnesses known as "opportunistic infections." This represents the final stage of HIV, indicating that the infection is highly advanced, and if not treated, it can result in death. According to Sabin and Lundgren,(2013) AIDS **is** acquired immunodeficiency syndrome, a

transmissible disease of the immune system caused by the human immunodeficiency virus (HIV).

2.3. Theoretical Constructs

This study applied the knowledge, attitude and practice (KAP) theoretical model. The theory divides the process of human behavior change into three continuous processes that help to explain human behavior. The three processes are acquiring knowledge, generating attitudes, and forming practice, during which human health behaviors can also be effectively changed (Schwartz, 1976). While knowledge is the capacity to acquire, retain and use information and skill; attitude refers to inclinations to react in a certain way to certain situations, and practice is the application of knowledge that leads to action (Wang & Zhang, 2021).

2.3.1. Knowledge towards HIV/AIDs prevention

Knowledge, according to Amsler, (1980), refers to “the fact or condition of knowing something with familiarity gained through experience. Based on this definition, knowledge of HIV/AIDS prevention among secondary students in this study referred to the extent of awareness and familiarity of issues regarding HIV/AIDs prevention among secondary students aged 10-20 years.

The Knowledge, Attitude, and Practice (KAP) theoretical model, rooted in the cognitive-affective behavior theory from social psychology, postulates that an increase in knowledge can positively impact attitudes, which in turn affects behaviors. This model is founded on the idea that enhancing individual knowledge

can lead to changes in behavior. Thus, it is hypothesized that participants' understanding of HIV/AIDS prevention may shape their attitudes and practices related to preventing the virus (Wang & Zhang, 2021).

2.3.2. Attitudes towards HIV/AIDS prevention among secondary School students

According to Solinger et al., (2008) in "The Psychology of Attitude" define attitude as "a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour". Attitude consists of three elements: cognition, affect, and behavior. Cognition includes both accurate and inaccurate beliefs about the subject of the attitude, and health education can modify these beliefs. Therefore, there can be a connection between knowledge and attitude. In summary, an attitude toward HIV prevention methods encompasses preconceived notions about HIV/AIDS and its management, individuals' feelings and emotions regarding HIV/AIDS care, and their willingness to act in certain ways concerning HIV/AIDS and its treatment.

2.3.3. Practice HIV/AIDS testing and/or treatment

Practice reflects the acquisition of knowledge, indicating a deeper understanding of a problem or disease, as well as any changes in attitude resulting from the clarification of misconceptions. This transformation leads to preventive behaviors. Therefore, this demonstration may illustrate a reciprocal relationship between knowledge and attitude. Practices are behaviors or actions that can avert a disease or delay its progression. In HIV/AIDs practice would involve knowing and using HIV/AIDs

prevention methods adherence to medication and following up with clinician. So if the secondary school students perceive the HIV/AIDS prevention methods with good intention they will use them in their daily life to protect against HIV/AIDS infections.

2.4. Empirical Literature Review

2.4.1. Overview of HIV/AIDS

Acquired immunodeficiency syndrome (AIDS) is a chronic infectious disease caused by human immunodeficiency virus (HIV). This is the late stage of HIV infection that occurs when the body's immune system is badly damaged because of the virus. HIV (human immunodeficiency virus) is a virus that attacks cells that help the body fight infection, making a person more vulnerable to other infections and diseases. If left untreated, HIV can lead to the disease AIDS (acquired immunodeficiency syndrome) (World Health Organization (WHO), 2021). AIDS was first identified in the USA in 1981 among homosexual males, with *Pneumocystis carinii* pneumonia occurring in five individuals and Kaposi sarcoma diagnosed in 26 others with the virus. The HIV was isolated from patients with lymphadenopathy in 1983 and 1984, and it was definitively established as the causative agent of AIDS (Sabin & Lundgren, 2013).

2.4.2 Transmission of HIV

Numerous studies have identified sexual intercourse as the primary mode of HIV transmission among secondary school students. Unprotected sexual activity, including vaginal, anal, and oral sex, has been consistently identified as a high-risk behavior. Research by Richard et al., (2020) found that a significant number of

secondary school students engage in unprotected sexual activities due to a lack of knowledge about safe sex practices. In addition to sexual intercourse, another mode of HIV transmission among secondary school students is through sharing contaminated needles or syringes during drug use (Richard et al., 2020). A study conducted by Esmaeilzadeh et al (2015) highlights the importance of addressing substance abuse and implementing harm reduction strategies to prevent the spread of HIV among this vulnerable population. Mother-to-child transmission (MTCT) is another important mode of HIV transmission that affects secondary school students. Infants born to HIV-positive mothers can acquire the virus during pregnancy, childbirth, or breastfeeding (Esmaeilzadeh et al., 2015). Studies by Teasdale et al., (2011) emphasize the significance of early HIV testing and access to antiretroviral therapy for pregnant women to reduce the risk of MTCT. Furthermore, it is essential to consider the role of knowledge, attitudes, and practices in HIV transmission. This study also found that a lack of comprehensive knowledge about HIV/AIDS and misconceptions about transmission increases the risk of infection among secondary school students. It is crucial to provide accurate and age-appropriate information about HIV transmission to promote safer behaviors (Teasdale et al., 2011).

2.4.3 Prevention/Control of HIV/AIDS

One of the most effective prevention strategies is promoting comprehensive sexual education in schools. Research by Flisher et al, (2009) emphasizes the importance of providing accurate information on safe sex practices, including condom use and the importance of regular testing. Programs that incorporate discussions on sexual health, communication skills, and gender equality have shown promising results in

reducing risky behaviors among students (Flisher & Klepp, 2009). Another crucial aspect of HIV/AIDS prevention is targeted interventions for key populations at higher risk of infection. Studies have highlighted the effectiveness of programs that specifically target populations such as sex workers, men who have sex with men (MSM), and intravenous drug users. These interventions include access to harm reduction services, HIV testing, counselling, and linkage to treatment and care. The availability and accessibility of condoms have been recognized as essential components in HIV prevention.

Studies have also demonstrated that condom promotion programs, including distribution through various channels such as schools, clinics, and community organizations, can significantly reduce the risk of HIV transmission. Additionally, the promotion of condom use among sexually active individuals has shown positive outcomes in reducing new infections. Promoting voluntary HIV counseling and testing (VCT) services has been recognized as an effective approach to prevention and control efforts (Nubed & Akoachere, 2016; Teasdale et al., 2011). Researches by Bekele et al., (2020) and Heri et al, (2021) have shown that increased access to VCT services, along with measures to reduce stigma and discrimination, encourage early diagnosis, treatment, and support. This, in turn, contributes to reducing the spread of the virus and improving the overall health outcomes for individuals living with HIV/AIDS. Furthermore, community engagement and involvement play a vital role in HIV/AIDS prevention and control. These efforts also emphasized the significance of community-based initiatives, including peer education, outreach programs, and support groups. These efforts foster awareness, reduce HIV-related stigma, and

empower individuals to make informed decisions about their sexual health (Bekele & Fekadu, 2020; Heri et al., 2021).

2.4.4 Knowledge of HIV/AIDS

Numerous studies have examined the knowledge levels of secondary school students regarding HIV/AIDS and found that there are significant gaps in knowledge among this population. For example, many students had misconceptions about the modes of transmission, such as believing that HIV can be transmitted through casual contact or mosquito bites. These findings indicate a need for comprehensive and accurate information dissemination (Alhasawi et al., 2019). Furthermore, studies have shown that the level of knowledge about HIV/AIDS among secondary school students varies across different regions and demographics. Research by Esmaeilzadeh et Al., (2015) revealed that students in urban areas generally had higher knowledge levels compared to those in rural areas. Additionally, gender differences were observed, with female students showing a better understanding of HIV transmission and prevention compared to their male counterparts.

The impact of knowledge on behavior change and HIV prevention practices among secondary school students has been a topic of investigation (Esmaeilzadeh et al., 2015, Nubed & Akoachere, 2016). Nubed & Akoachere, (2016) found a positive correlation between higher levels of HIV/AIDS knowledge and engagement in safer sexual practices. Students with accurate knowledge were more likely to use condoms consistently and exhibit a greater understanding of the importance of regular HIV testing. In addition to the overall knowledge levels, studies have also explored the

sources of HIV/AIDS information for secondary school students (Nubed & Akoachere, 2016). In additional this study highlighted that peers, teachers, and media were the primary sources of information for students. However, the quality and accuracy of the information obtained from these sources were often inconsistent. This emphasizes the importance of reliable information dissemination channels, such as comprehensive sexual education programs delivered by trained educators.

2.4.5 Attitude towards HIV/AIDS

The attitudes of secondary school students towards HIV/AIDS prevention play a significant role in determining their behavior and practices. A study conducted by Nubed & Akoachere, (2016) found that students who had positive attitudes towards HIV/AIDS prevention were more likely to engage in safe sex practices and use protection during sexual intercourse. Another study reported that students who had negative attitudes towards HIV/AIDS prevention were more likely to engage in risky sexual behavior and were less likely to seek HIV testing and counselling services.

The study also found that lack of knowledge about HIV/AIDS prevention was a major contributing factor to negative attitudes towards HIV/AIDS prevention among secondary school students (Alhasawi et al., 2019). In addition, another study found that peer influence also plays a significant role in shaping the attitudes of secondary school students towards HIV/AIDS prevention. Students who had peers who engaged in risky sexual behavior were more likely to have negative attitudes towards HIV/AIDS prevention and engage in similar behavior themselves (Esmaeilzadeh et al., 2015).

2.4.6 Practice of HIV/AIDS Control

The practices of secondary school students towards HIV/AIDS prevention are important in determining their risk of contracting the virus. A study conducted by Nubed & Akoachere, (2016) found that only a small percentage of secondary school students reported consistently using condoms during sexual intercourse. The study also reported that students who had negative attitudes towards HIV/AIDS prevention were less likely to use condoms and engage in other safe sex practices (Nubed & Akoachere, 2016). In addition, a study by UNAIDS reported that access to HIV testing and counselling services is crucial in promoting practices of HIV/AIDS prevention among secondary school students. The study found that students who had access to HIV testing and counselling services were more likely to engage in safe sex practices and seek treatment if diagnosed with HIV (UNAIDS, 2023).

2.5. Research Gap

Regarding positive practices for HIV prevention, some progress has been noted in testing. For example, South Africa reported an 18-fold increase in the number of individuals undergoing HIV testing and counselling between 2007 and 2008 (Moshoeshoe & Madiba, 2021), while Morocco saw a 24-fold rise from 2001 to 2007 (Kouyoumjian et al., 2013). However, the overall number of people getting tested for HIV remains low. Alarmingly, studies in Palestine indicate that knowledge of available community resources is severely lacking. Only 5.2% of women were aware of a location in the community where they could receive confidential HIV testing. Currently, there are 37 health facilities (about 5% of all facilities) offering HIV testing and counselling (Hamarsheh, 2020). More than 15,000 individuals were

tested for HIV in the 12 months leading up to the survey. Men generally tested at a younger age than women, with the highest number of male testers in the 15-19 age group, while women showed the highest testing rates in the 25-29 age range (Kanoa et al., 2015). Nonetheless, this only represented 4% of all individuals aged 15-49 who had been tested for HIV in the past year (Kanoa et al., 2015).

Regarding condom use in Palestine, pharmacies are considered the most accessible source for condoms in the region. However, barriers such as high prices, partner refusal, the distance to pharmacies, a lack of perceived necessity for condoms, and fears of legal repercussions (particularly for sex workers and men who have sex with men) hinder their use. Overall, men in the region tend to hold negative attitudes toward condom use (Haroun et al., 2016). Additionally, a gender gap exists; for instance, in Iran, male college students were nearly twice as likely as female students to be aware that condoms can prevent sexually transmitted infections, with 62% of males compared to 39% of females (Tavoosi et al., 2004).

In Lindi, the prevalence of HIV is about 2.9% which is lower compared to the regions like Kagera, Iringa, and Mbeya (Ministry of Health (MoH)[Tanzania mainland], Ministry of Health [Zanzibar], National Bureau of Statistics(NBS), Office of the Chief Government Statistician (OCGS), 2010). Studies have found that in Ruangwa District Council, HIV/AIDs transmission increased from 3.7% to 4.3% (Ministry of health (MoH)[Tanzania mainland], Ministry of Health [Zanzibar], National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), 2020). Young people aged 15-24 are affected more and most of them are in

secondary schools. There remains an unmet need for effective HIV prevention strategies among adolescents is understanding knowledge, attitude and practices on HIV/AIDS preventions.

2.6. Conceptual Framework

A conceptual framework is regarded as a map for understanding the relationships between and among the variables in quantitative and qualitative studies. The variables that are being used are dependent and independent variables that described below as follows;

2.6.1. Dependent Variable

The dependent variables are variables expected to change as a result of an experimental manipulation of the independent variables. It is a presumed effect. In this study, dependent variables are HIV/AIDS control measures such as the use of condoms.

2.6.2. Independent Variable

The independent variable is that which is controlled to see its effects to other variables. It refers to the condition from experiment that is systematically manipulated by the investigator. The independent variable in this study is categorical with three elements, these are knowledge, attitude and practice.

The conceptual framework used in this study was an adaptation from Cabana et al, 1999 and Roelens et all, (2006). In the first instance, Mutaru et al., (2023) used a

similar framework to assess KAP toward HIV/AIDS among trainee nurses and explain the sequence of behavior 6 change from knowledge, to attitude and then behavior. He further developed behavior framework to come up with a predictive model to assess knowledge and attitudes to influence practices HIV/AIDs preventive methods (Mutaru et al., (2023).

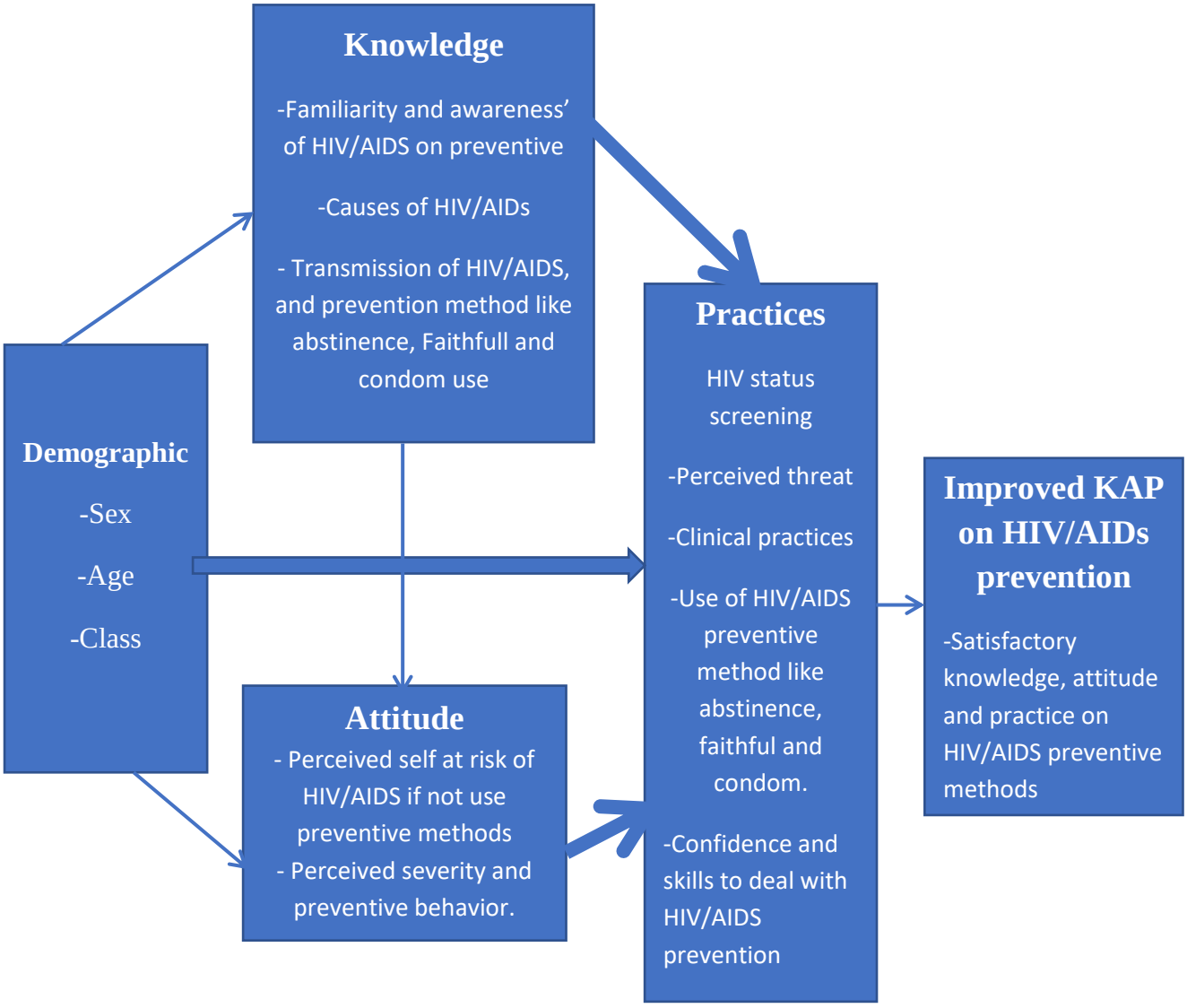

Figure 2.1: Knowledge, attitude and practices towards HIV/AIDS prevention among secondary school students: A conceptual framework (Adopted modified from Mutaru et al., 2023).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Design

Research design is the framework of research methods and technique chosen by researcher. The design allows researchers to hone in on research methods that are suitable for the subject matter and set up their studies for success. This study utilized a cross-sectional study design to assess the knowledge, attitudes, and practices (KAP) of secondary school students towards HIV/AIDS prevention methods. A cross-sectional study is a type of research design in which you collect data from many different individuals at a single point in time.

3.2. Study area

This study was carried out in Ruangwa district. Ruangwa district is one of the five districts of the Lindi region in Tanzania. The majority of the villagers are subsistence farmers of maize, Cashnuts and Sesame. The district is also characterized by large plantations of Cashnuts. According to the 2022 Tanzania National Bureau of Statistics, the population of Ruangwa district was 185,573 and the district has an area of 2556 Kilometre squares (National Bureau of Statistics (NBS) 2022).

3.3. The Study Population

The target population for this study was secondary school students in Ruangwa District because they are a vulnerable and high-risk group. Adolescents and young people are at a higher risk of contracting HIV/AIDS due to various reasons such as peer pressure, experimentation, and lack of knowledge about prevention, also are the

ones who are most affected by any interventions or programs aimed at preventing HIV/AIDS.

3.4. Inclusion Criteria

Table 3.1; Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
Ordinary secondary school students from form one to form four in Ruangwa district	Primary school pupils, advanced secondary school students, university students
Age between 11 to 17	Age below 11 and above 17

3.5. Sample Size Determination

A sample is a limited portion of a statistical population whose characteristics are examined to obtain insights about the entire group (Webster, 1985:28). In the context of human subjects, it refers to a group of respondents chosen from a larger population to conduct a survey. The term "sample size" in research refers to the number of individuals included in a study to represent the population. In this study, a sample size of 385 secondary school students was used. Determined by using the Kish and Leslie formula(Kish, 1965)

$$n = \frac{Z^2 P (100 - P)}{\varepsilon^2}$$

Whereby:

n = minimum sample size required

Z = standard normal deviation set at 1.96 (corresponding to a confidence level of 95%)

P = estimated prevalence of knowledge among secondary school students who have knowledge in Tanzania 49.9% (Kigombola & Gotora, 2010).

ε = maximum error allowed, assumed to be 5%

$$n = \frac{(1.96)^2 \times 50 \times (100 - 49.9)}{5^2}$$

n= 384.93 which is approximately 385.

3.6. Sampling Technique

Sampling is the act, process or technique of selecting a suitable sample or a representative part of a population for the purpose of determining parameters or characteristics of the whole population. In this study sampling technique used was the systematic quota random sampling technique.

Systematic quota random sampling technique

Systematic quota random sampling is the probability sampling method in which a random sample with a fixed periodic interval is selected from a larger population. A total of 16 secondary schools were selected from Ruangwa district council. The names of schools in Ruangwa district were written on pieces of paper, mixed, and (five) 5 picked at random. From the selected schools, respondents were recruited from form one to form four classes (on average 11–17 years old) after they signed an informed consent form. Seventy seven (77) Students were selected from each school. Participation of the students was voluntary. All volunteers moved into a separate hall. Participants were randomly selected from those who fell within our desired age subgroup.

3.7. Data Collection

Data collection is the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. Data can be in different forms, here are the primary data types: Qualitative data and Quantitative data. Quantitative data was collected in this study to assess the students' KAP towards HIV/AIDS prevention methods with true/false questions, assessment of attitude toward HIV/AIDS prevention methods by using a Likert scale questionnaire and assessment of practice towards HIV/AIDS prevention methods. In this study a structured Swahili questionnaire was used to collect data from 385 secondary school students including: practices (condom use, number of sexual partners, age at first sexual involvement etc), attitude and knowledge on HIV/AIDS. The questionnaire had seven parts, first part about socio-demographic, second parts about Relation status, Third part status of HIV/AIDs, the fourth part on source of information about HIV/AIDS, the fifth part on knowledge questionnaire, the sixth part on attitude questionnaire, and the seventh part was on practice questionnaire. All questionnaires were checked daily for completeness and consistency. The structured questionnaires used to collect the information on knowledge, Altitude and practices towards HIV/AIDS prevention are attached in the appendix.

3.8. Data Analysis

The collected data and each response to a question in the questionnaire were coded and then entered into the Excel sheet. The data was exported and analyzed using Statistical Package for Social Scientists (SPSS version 20). To assess the general

knowledge of HIV/AIDS transmission, prevention and control, we first entered and coded the responses numerically for each question. Then performed frequency analysis to calculate the percentages of correct, incorrect, and unsure responses, and presented the results in three line table 4-6. To further assess the variation of knowledge level among students of different sexes and study years, we performed descriptive statistics specifically frequency analysis to show the distribution of the response (true, false and not sure) by males and females in the different forms (I, II, III, IV). For the knowledge questions, a score of 1 was assigned for a correct answer and 0 for a wrong answer for the knowledge related questions that were strictly "True/False". The levels of knowledge were categorized into "low" for respondents who scored 50 % and below, "moderate" for those who scored between 51 and 74 %, and "high" for those who scored 75 % and above.

3.9. Ethical Clearance

Permission to conduct the study was obtained from the Open University of Tanzania and respective secondary schools. Students were recruited into the study after an introductory note and the reasons for the research were explained to each student before the collection of data began. Those who responded positively were recruited while those who refused consent were not included in the study. Student's names were not written on the questionnaire to maintain confidentiality.

3.10. Study Limitation

Lack of cooperation with teachers in schools, lack of information, some of the records contained may be lacking /written in a way that it was difficult to interpret**.**

To overcome these challenges we promoted interaction between students. The willingness of group members to encourage and facilitate each other's efforts to complete their tasks for the group to work together. Also providing each other with the help they need, sharing needed resources, and providing effective feedback to group members on their performances on specific tasks that were given.

3.11. Validity and Reliability

Validity refers to the accuracy of a measure; reliability refers to the consistency of a measure. Validity is assessed by checking whether the results really represent what they are supposed to measure. Reliability is assessed by checking whether the results can be reproduced under the same conditions. According to Ahmed and Ishtiaq, (2021) reliability refers to the accuracy of instrument, which requires elimination of bias from the interviewer aspects. Once data had been collected, statistical analysis and graph become necessary in order to reach the conclusion concerning the outcome of the research and to determine whether the stated hypothesis had been supported or rejected. In this study to ensure reliability, the collected data was entered into the computer using the SPSS program for further cleaning, categorizing and analysis (Ahmed & Ishtiaq, 2021). Then analyzed data was summarized into frequency, tables and graphs.

According to Fullerton (1993), Validity is a complex concept, with many variations and subdivisions, and measuring its extent can be very involved. Validity tells us whether an item measures or describes what it is supposed to measure or describe (Fullerton, 1993). There are many ways of ensuring validity validity, one of which is

to devise and use an appropriate instrument. In this study to ensure validity, the interview schedules were done in September 2022 when all schools were opened. An effort was made to ensure that the questions asked related closely to the objective of the study. Pre –testing sampling was done through the prepared questionnaire. Interview schedules tested ten (10) students from five (5) secondary schools. This gave an understanding of possible problems with the research tool and gave the researcher a chance to refine the approach that will be easily understood by respondents during data collection. A pre-test of using interview schedules revealed ambiguities and poorly worded interview schedules. In the pre-test, respondents gave their comments regarding clarity, language, length and the appropriateness of the questions asked in terms of embarrassment. Some minor problems were identified and addressed before the distribution of interview questionnaires.

CHAPTER FOUR

RESULTS

4.1 Demographic characteristics

4.1.1. Sex of respondents

The study population consisted of 385 students of which (195) 50.6% were males and (190) 49.4% were females. The distribution of the sex participants is shown in Table 4.2.

Table 4.2: Sex of respondents

Characteristics	Number	Percentage (%)
Sex		
Male	195	50.6%
Female	190	49.4%
Total	385	100%

4.1.2. Age distribution of respondents

As per table 4-3, the age respondents range from 11 to 17 years. Among them 37.9% of participants were between the ages of 11 to 14 years old, while 62.1% of participants were between the ages of 15 to 17 years old. This imply that the majority of participants were teenagers between the ages of 15 to 17 years old, while a significant minority were pre-teens between the ages of 11 to 14 years old. The total number of participants in the study was 385, which represents 100%. The mean age of participants was 14 years.

Table 4.3; Shows the frequency and percentage of the age range of participants in the study. The data is based on a sample of 385 individuals

		Frequency	Percentage (%)
Age	11Yrs-14Yrs	146	37.9%
	15Yrs-17Yrs	239	62.1%
Mean	14 years		
	Total	385	100.0

4.1.3. Education level/Class of respondent

Out of the total participants, 122 (31.7%) were form I students, one hundred (26%) form II students, seventy-nine (20.5%) form III students and eighty-four (21.8%) form IV students (Table 4.4).

Table 4.4; Education level/Class of respondent

Level of education	**Number**	**Percentage (%)**
Form I	122	31.7%
Form II	100	26%
Form III	79	20.5%
Form IV	84	21,8%

4.1.4. Age at first sexual

As per the table 4.5 below**,** the majority of the participants (50.6%) had their first sexual intercourse between the ages of 12 to 15 years old, with the highest percentage being 13.5% for those who had it at 14 years old. Only 1.3% of participants had their first sexual intercourse at the age of 17 years old. Additionally, 39.7% of participants responded with "Not applicable" which means they have not yet had sexual intercourse.

Table 4.5: The table shows the frequency and percentage of the age at which people had their first sexual intercourse.

	Age at first Sexual Intercourse		
		Frequency	**percent**
Valid	11yrs	34	8.8
	12yrs	37	9.6
	13yrs	39	10.1
	14yrs	52	13.5
	15yrs	33	8.6
	16yrs	32	8.3
	17yrs	5	1.3
	Not applicable	153	39.7
Mean	14years		
	Total	**385**	**100.0**

Note: Not applicable are all secondary school students who never had sex

4.2. Knowledge of HIV/AIDS transmission, prevention and control

4.2.1. Source of information

All respondents had heard about HIV/AIDS but their sources of information varied. As illustrated in Figure 4.2, 193 (50.1 %) obtained their information on HIV/AIDS from their teachers at school, 62 (16.1 %) from the radio, 35 (9.1 %) from friends while 31 (8.1 %) heard about HIV/AIDS from religious organization/leaders. Less prominent sources were the TV 25 (6.5 %), pamphlets on HIV/AIDS 9 (2.3 %), newspapers 6 (1.6 %) and the internet 5 (1.3 %).

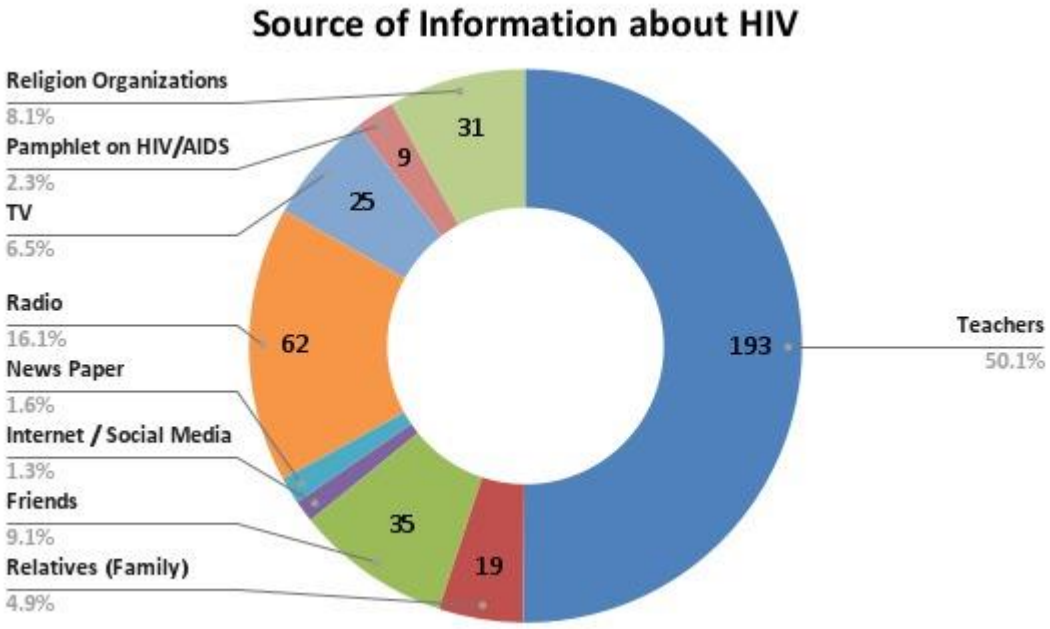

Figure 4.1: Source of information about HIV

4.2.2. Knowledge of HIV/AIDS transmission, prevention and control

To evaluate participants' knowledge on causes and routes of transmission of HIV/AIDS respondents were asked to choose the most correct cause and routes of transmission (Table 4.6). Correct responses included multiple sexual partners increasing the risk of HIV infection, transmission from infected mother to child, sharing of infected blades, needles and unsterilized medical equipment and HIV is caused by bacteria. The majority 82.56 % of our respondents had higher knowledge of the routes of transmission of HIV. Only (17.44 %) had low knowledge (figure 4.2). 81.8% of respondents answered HIV is not caused by bacteria and 15.6 % thought that HIV could be transmitted by bacteria infections while 2.6 % were not sure if HIV is caused by bacteria.

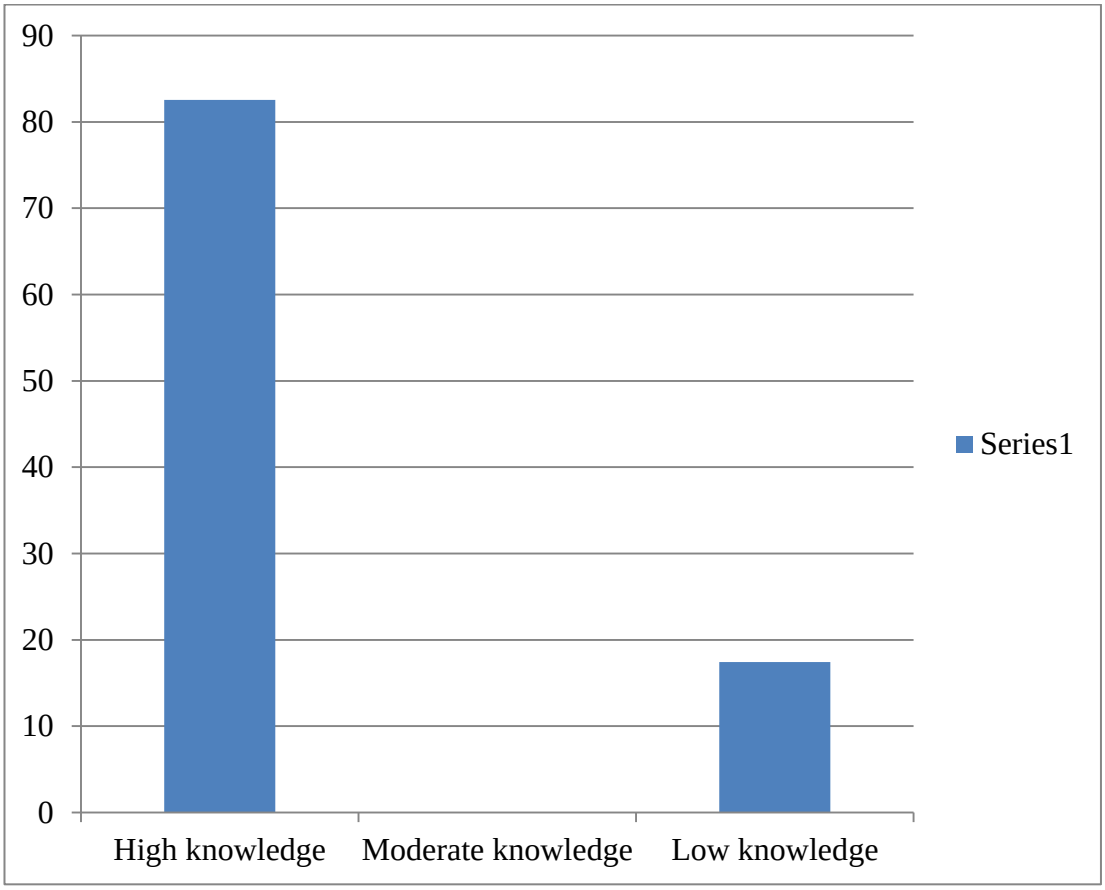

Figure 4.2 : Level of knowledge

With regards to knowledge of prevention and control, most of the respondents 380 (98.7 %) indicated that transmission could be reduced by being faithful to a single sexual partner. Furthemore the results show that the majority 364 (94.5 %) of students indicated that the consistent and correct usage of condoms could reduce the risk of HIV/AIDS transmission. Others 378 (98.2 %) indicated abstinence from sexual intercourse as a prevention strategy (Table 4.6). However, some students (18.2 %) believed that there exists a cure for HIV/AIDS and 78 (20.3%) indicated that there is a vaccine for HIV.

In terms of self-efficacy at the individual level, determining how capable participants felt in protecting themselves was essential, as it could help them avoid unwanted sexual encounters and their associated consequences while advocating for condom use. Participants were therefore asked if they could refuse sexual advances to assess their confidence in controlling their sexual lives and activities. Among the responses, 50% of participants reported feeling very strong control over their sexual lives, some students (23.3%) felt they had strong control, and very few (6.9%) felt they had no control, and 6.0% were unsure about their level of control (Table 4.6).

Further result (Table 4.7) shows the percentage of male and female students in different forms (I, II, III, IV) who answered true, false, or not sure to various statements about HIV/AIDS. The data reveals variations in knowledge levels among students of different sexes and study years. A higher percentage of male students (13.8%) in Form IV answered "True" to the statement "HIV is caused by bacteria" compared to female students (8.1%) in the same form. Similarly, a higher percentage of male students in Form IV (13.8%) answered "True" to the statement "AIDS has no cure" compared to female students (8.1%) in the same form. The data highlights the need for targeted HIV/AIDS education and awareness programs to address the knowledge gaps identified in the study. Overall results show female secondary school students have high knowledge (44.2%) on HIV/AIDS transmission, prevention and control across all different classes compared to male students (37.7%). Form II students show high knowledge (26%) on HIV/AIDS transmission, prevention and control across different forms I, III, IV.

Table 4.6: Knowledge of HIV/AIDS transmission, prevention and control

Questions	Percentage with correct answer	Percentage reporting with wrong response (misconception)	%not sure
Knowledge of transmission			
1. HIV is caused by bacteria (F)	315(81.8%)	60(15.6%)	10(2.6%)
2. All HIV infected mother give birth to HIV infected child (F)	120(31.2%)	265(68.8%)	0(0%)
3. Multiple sexual partiners increase the risk of HIV infection (T)	366(95.1%)	18(4.7%)	1(0.2%)
Knowledge on prevention and control			
4. AIDs has no cure	315(81.8%)	70(18.2%)	0(0%)
5. There is vaccine for HIV	305(79.2%)	78(20.3%)	2(0.5%)
6. Abstinence from sexual intercourse can prevent from hiv	378(98.2%)	7(1.2%)	0(0%)
7. Being faithful to a single sexual partiner can prevent from HIV	380(98.7%)	5(1.3%)	0(0%)
8. Consistent and correct usage of condom prevents HIV	364(94.5%)	18(4.7%)	3(0.8%)

Table 4.7: Knowledge on HIV/AIDS transmission, prevention, and control based on sex and year of study.

		Year of Study							
		Form I		Form II		Form III		Form IV	
		Sex		Sex		Sex		Sex	
		Male	Female	Male	Female	Male	Female	Male	Female
HIV is caused by bacteria	True	44(11.4%)	16(4.2%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	False	37(9.6%)	15(3.9%)	30(7.8%)	70(18.2%)	25(6.5%)	54(14%)	53(13.8%)	31(8.1%)
	Not Sure	6(1.6%)	4(1.0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
AIDS has no cure	True	37(9.6%)	15(3.9%)	30(7.8%)	70(18.2%	25(6.5%)	54(14%)	53(13.8%	31(8.1%)
	False	50(13%)	20(5.2%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Not Sure	0(0%)	0(0%)	0(0%)	0(%)	0(0%)	0(0%)	0(0%)	0(0%)
There is Vaccine for HIV	True	58(15.1%	20(5.2%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	False	28(7.3%)	14(3.6%)	30(7.8%)	70(18.2%	25(6.5%)	54(14%)	53(13.8%	31(8.1%)
	Not Sure	1(0.3%)	1(0.3%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
All HIV infected mothers give birth to HIV infected child	True	87(22.6%)	35(9.1%)	30(7.8%)	70(18.2%	12(3.1%)	31(8.1%)	0(0%)	0(0%)
	False	0(0%)	0(0%)	0(0%)	0(0%)	13(3.4%)	23(6%)	53(13.8%	31(8.1%)
	Not Sure	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Multiple sexual partners increase the risk of HIV infection	True	74(19.2%	29(7.5%)	30(7.8%)	70(18.2%	25(6.5%)	54(14%)	53(18.8%	31(8.1%)
	False	12(3.1%)	6(1.6%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Not Sure	1(0.3%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Abstinence from sexual intercourse can	True	83(21.6%	32(8.3%)	30(7.8%)	70(18.2%	25(6.5%)	54(14%)	53(13.8%	31(8.1%)
	False	4(1.0%)	3(0.8%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)

prevent from HIV	Not Sure	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Being faithful to a single sexual partner can prevent from HIV	True	84(21.8%	33(8.6%)	30(7.8%)	70(18.2%	25(6.5%)	54(14%)	53(13.8%	31(8.1%)
	False	3(0.8%)	2(0.5%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Not Sure	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Consistent and correct usage of condom prevents HIV	True	75(19.5%	29(7.5%)	30(7.8%)	70(18.2)	25(6.5%)	54(14%)	50(13%)	31(8.1%)
	False	12(3.1%)	6(1.6%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	Not Sure	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	3(0%)	0(0%)

4.3. Attitudes toward HIV/AIDS prevention

Out of total respondents, only 285 (74 %) respondents indicated that are not willing to have sexual intercourse if their partner doesn't want to use condoms. The majority (81 %) disagreed that the use of condoms indicates a lack of trust in the partner's faithfulness. Out of the total participants, 190 (49.4%) agreed that the problem (e.g stigma and discrimination, mortality rate and treatment accessibility) created by HIV/AIDS is exaggerated, while 195 (50.6%) disagreed with this statement. Most of the participants 380 (98.7 %) disagree that AIDS patients should be isolated for the safety of others. The majority of the participants 101 (26.2%) accepted that checking one status of HIV is important while 62 (70.6 %) disagreed. The majority (75 %) of students had positive attitudes towards HIV/AIDS prevention methods. Those who had negative attitudes comprised 23.7 % (Table 4.8).

In response to the class of study, some of Form I students (29.1%) agreed that the problems created by HIV/AIDS are exaggerated. Form IV students showed the highest disagreement (30.4%) with the statement that AIDS patients should be isolated for the safety of others. A significant number of Form II students (26.0%) strongly disagreed that the use of condoms indicates a lack of trust in the partner's faithfulness. These results show a notable variation in attitudes toward HIV/AIDS prevention among students across different forms of study. Form IV students seem to have more progressive attitudes, as seen in their lower agreement with isolating AIDS patients compared to other forms. The findings suggest a need for targeted interventions and education programs to address misconceptions and promote safer practices among secondary school students (Table 4.9).

On attitude towards sexual intercourse and condom use, male students, 17.4% agree that they can have sexual intercourse if their partner doesn't want to use a condom. Whereas some (33.2%) strongly disagree with this statement, some female students (6.0%) agree that they can have sexual intercourse without a condom and others (40.8%) strongly disagree with this statement. On attitude towards condom use and trust, 12.7% of male students agree that the use of a condom indicates a lack of trust in the partner's faithfulness, and 35.6% strongly disagree with this statement. While 6.2% of female students agree with the statement where 42.3% strongly disagree with it. On the perception of HIV/AIDS severity, 26.8% of male students agree that the problems created by HIV/AIDS are exaggerated and 23.9% disagree with this statement. Some (22.6%) female students agree with the statement wheras 26.8% disagree with it. On attitude towards isolation of AIDS patients, very few (1.0%) of male students agree that AIDS patients should be isolated for the safety of others and about half (49.6%) disagree with this statement. Furthermore, very few (0.3%) of female students agree with the statement and some (49.1%) disagree with it.

On the importance of checking HIV Status, 15.3% of male students agree that checking one's HIV status is not important and 33.8% disagree with this statement. 10.9% of female students agree with the statement and 37.1% disagree with it. The data shows variations in attitudes towards HIV/AIDS prevention between male and female secondary school students. Female students generally exhibited higher levels of disagreement with risky behaviors and misconceptions related to HIV/AIDS prevention compared to male students (Table 4.9).

Table 4.8: Attitude toward HIV/AIDS prevention among secondary school

Question	Agree	Dis agree	I don't know
I can do sexual Intercourse if my partner doesn't want to use condom	90(23.4%)	285(74%)	10(3.6%)
The use of condom indicate a lack of trust in the partners faithfulness	73(19%)	312(81%)	0(0%)
The problem created by HIV/AIDS is exaggerated	190(49.4%)	195(50.6%)	0(0%)
AIDs patient should be isolated for the safety of others	5(1.3%)	380(98.7%)	0(0%)
Checking ones status of HIV is not as such important	101(26.2 %)	272(70.6%)	12(3.1%)

Table 4.9: Attitude toward HIV/AIDS prevention among secondary school based on sex and year of study

		Year of Study							
		Form I		Form II		Form III		Form IV	
		Sex		Sex		Sex		Sex	
		Male	Female	Male	Female	Male	Female	Male	Female
I can do sexual intercourse if my partner doesn't want to use condom	I agree	67(17.4%)	23(6%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	I disagree	20(5.2%)	2(0.5%)	30(7.8%)	70(18.2%)	25(6.5%)	54(14%)	53(13.8%)	31(8.1%)
	I don't know	0(0%)	10(2.6%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
The use of condom indicates a lack of trust in the partner's faithfulness	I agree	45(11.7%)	18(4.7%)	0(0%)	0(0%)	0(0%)	0(0%)	4(1%)	6(1.6%)
	I disagree	42(10.9%)	1714(4.4%)	30(7.8%)	70(18.2%)	25(6.5%)	54(14%)	49(12.7%)	25(6.5%)
	I don't know	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
The problems created by HIV/AIDS is exaggerated	I agree	80(20.8%)	32(8.3%)	15(3.9%)	51(13.2%)	5(1.3%)	1(0.3%)	3(0.8%)	3(0.8%)
	I disagree	7(1.8%)	3(0.8%)	15(3.9%)	19(4.9%)	20(5.2%)	53(13.8)	50(13%)	28(7.3)
	I don't know	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
AIDS patients should be isolated for the safety of others	I agree	4(1%)	1(0.3%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
	I disagree	83(21.6%)	34(8.8%)	30(7.8%)	70(18.2%)	25(6.5%)	54(14%)	53(13.8%)	31(8.1%)
	I don't know	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)	0(0%)
Checking ones status of HIV is not as such important	I agree	51(13.2%)	29(7.5%)	2(0.5%)	9(2.3%)	191(0.3%)	0(0%)	5(1.3%)	4(1%)
	I s disagree	32(8.3%)	6(1.6%)	26(6.8%)	343(14.5%)	24(6.2%)	54(14%)	48(12.5%)	27(7%)
	I don't know	4(1%)	0(0%)	2(0.5%)	6(1.6%)	0(0%)	0(0%)	0(0%)	0(0%)

4.4. Practice related to HIV/AIDS

As illustrated in Table 4.10, the majority of respondents 229 (59.5 %) had a history of sexual intercourse. The mean age at sexual debut was 14 years. While some students (56.6 %) used a condom during their last sexual encounters, others (43.4%) did not use condom in their last sexual encounter. Results also show that several students (54 %) said they used condoms during their first sexual intercourse. The majority of students (96.1 %) reported that they know where to go for HIV testing while very few students (3.9 %) indicated that they don't know where to test for HIV. None of the 385 participants shared sharp materials with others. Seventy-two-point seven percent (72.7 %) of respondents who knew how to prevent HIV/AIDS mentioned abstinence that works more for them, others (22.1%) mentioned faithful to a single partner, while 20 (5.2 %) mentioned condoms use works best for them. The best preventive method that works best mentioned by both male and female students was abstinence followed by faithfulness as shown in Table 4.10 below.

In practices towards HIV/AIDS prevention, a higher percentage of male students (30.4%) were exposed to sexual intercourse with opposite compared to female students (29.2%) across all classes of study. The percentage of students who know where to go for HIV testing is low across all forms and sexes. Where high percentage of female students (48.6%) knew where to go for HIV testing compared to male students (47.6%). Male students (23.8%) who didn't a use condom during their first sexual intercourse showed a higher level of disagreement with the statement that the problems created by HIV/AIDS are exaggerated compared to male students (23.9%). In terms of the belief that AIDS patients should be isolated for the safety of others,

male students (49.7%) showed a slightly higher level of disagreement compared to female students (49.1%) across all classes of study (Table 4.11).

Form II students (26.0%) exhibit higher levels of good attitude across various aspects towards HIV/AIDS prevention among secondary school students compared to other classes (Form I, Form III, Form IV). However, Form IV students (20.3%) showed a higher level of disagreement with the statement that the problems created by HIV/AIDS are exaggerated compared to other classes (Form I, Form II, Form III), which signifies that they have a good attitude towards HIV/AIDS preventions (Table 4.11).

Table 4.10: Practice related to HIV/AIDS

Questions	**Yes (%)**	**No (%)**
Do you have a sexual exposure with opposite sex up to now?	229(59.5%)	156(40.5%)
Have you ever shared sharp material with others?	0(0%)	385(100%)
Do you know where to do for HIV testing?	370(96.1%)	15(3.9%)
Have you used condom during your first intercourse?	208(54%)	177(46%)
Did you use condom in your last sexual intercourse?	218(56.6%)	167(43.4%)
	Multiple choice	**Answer**
From ABC HIV preventive mechanisms which one works best for you?	A. Abstain	280(72.7%)
	B. Faithful...	85(22.1)
	C. Condom	20 (5.2%)

Table 4.11: Practice related to HIV/AIDS based on sex and class of study

			Year of Study							
			Form I		Form II		Form III		Form IV	
			Sex		Sex		Sex		Sex	
			Male	Female	Male	Female	Male	Female	Male	Female
Have a sexual exposure with opposite sex up to now	Yes	Count	29	11	19	43	21	40	48	18
		Table N %	7.5%	2.9%	4.9%	11.2%	5.5%	10.4%	12.5%	4.7%
	No	Count	58	24	11	27	4	14	5	13
		Table N %	15.1%	6.2%	2.9%	7.0%	1.0%	3.6%	1.3%	3.4%
Ever shared sharp materials with other	Yes	Count	0	0	0	0	0	0	0	0
		Table N %	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	No	Count	87	35	30	70	25	54	53	31
		Table N %	22.6%	9.1%	7.8%	18.2%	6.5%	14.0%	13.8%	8.1%
Know where to go for HIV testing	Yes	Count	75	32	30	70	25	54	53	31
		Table N %	19.5%	8.3%	7.8%	18.2%	6.5%	14.0%	13.8%	8.1%
	No	Count	12	3	0	0	0	0	0	0
		Table N %	3.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Used condom during your first sexual intercours	Yes	Count	16	6	18	41	21	40	48	18
		Table N %	4.2%	1.6%	4.7%	10.6%	5.5%	10.4%	12.5%	4.7%
	No	Count	71	29	12	29	4	14	5	13
		Table N %	18.4%	7.5%	3.1%	7.5%	1.0%	3.6%	1.3%	3.4%
Used condom in your last sexual intercourse	Yes	Count	24	8	18	41	21	40	48	18
		Table N %	6.2%	2.1%	4.7%	10.6%	5.5%	10.4%	12.5%	4.7%
	No	Count	63	27	12	29	4	14	5	13
		Table N %	16.4%	7.0%	3.1%	7.5%	1.0%	3.6%	1.3%	3.4%
From the ABC HIV preventive mechanisms which one works best for you	Abstinence	Count	86	34	30	69	17	41	3	0
		Table N %	22.3%	8.8%	7.8%	17.9%	4.4%	10.6%	0.8%	0.0%
	Be faithfulness to one uninfected partner	Count	0	1	0	0	8	13	32	31
		Table N %	0.0%	0.3%	0.0%	0.0%	2.1%	3.4%	8.3%	8.1%
	Condom use	Count	1	0	0	1	0	0	18	0
		Table N %	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%	4.7%	0.0%

CHAPTER FIVE

DISCUSSION

Knowledge, attitudes and practices (KAP) studies are very useful tools prior to any intervention to assess the extent to which individuals or communities are ready to adopt risk-free behaviors. In this study, 82.1% of participants had a high level of knowledge of HIV/AIDS**,** whereas those with poor knowledge comprised 16.9 %. Compared to the study done in Kagera in which 93.7 % had high levels of knowledge, and 6.3 % had poor knowledge (Kamala and Aboud, 2010). Our participants were better informed about HIV/AIDS, and extensive awareness campaigns on HIV/AIDS have been conducted locally, nationally and globally which could have been expected to have increased the HIV and AIDS knowledge of our participants. Similar results have been shown by Kamala and Aboud, (2010). Similar to NACP Surveillance report (2003), respondents in this study reported sexual education in school (given by teachers) as the main source of information on HIV/AIDS. This implies that the school was a common source of HIV and AIDS information which augers well for school-based HIV and AIDS programs. With the exception of radio (16.1 %), the media (internet/social media, pamphlets and newspapers) had the lowest ratings as sources of information. The low percentages of the media outlets as sources of information directed towards secondary school students directly indicate that the media may not be the primary channel to use for any intervention on HIV/AIDS targeting secondary school students in our study area.

We investigated knowledge of transmission and prevention of HIV infection in participants. The results from participants showed an awareness of the routes of

HIV/AIDS transmission, with most demonstrating an acceptable level of knowledge categorized as excellent or good. However, some misconceptions were noted, including the belief that infection could be transmitted by bacteria (15.6%), that an HIV-positive mother would give birth to an HIV-positive child (68.8%), that having multiple sexual partners increases the risk of HIV infection (4.7%), that consistent and correct condom use prevents HIV (4.7%), and that abstinence is a viable prevention method (1.2%). These misconceptions could lead to risky behaviors, such as unprotected sex or having multiple sexual partners, which may increase their risk of infection. These findings highlight the need for enhanced educational interventions, particularly within the secondary school curriculum. Similar misconceptions have been reported by Nubed & Akoachere, 2016.

Based on sex, the study shows that female students exhibited higher knowledge (44.2%) compared to male students (37.7%). These findings align with other research. Studies in low- and middle-income countries have consistently shown that adolescent males tend to score higher in HIV-related knowledge, including transmission, prevention, attitudes, and sexual decision-making (Lidia Sari, 2023). However, despite this sex-based discrepancy in knowledge levels, girls are often at a higher risk of HIV infection due to social and cultural factors, emphasizing the urgent need to address gaps in girls' knowledge and boys' roles in HIV risk (Chory et al., 2023). Additionally, research in Indonesia highlighted the importance of increasing HIV/AIDS education in schools through various means, such as incorporating reproductive health material into the curriculum and utilizing peer study groups and media for information dissemination (Lal et al., 1994).

With respect to the attitude towards HIV/AIDS prevention in secondary schools, the study showed students exhibited mixed attitudes displaying positive attitudes on some of the issues and negative attitudes on others. Only 54.5 % of students had positive attitudes towards HIV/AIDS prevention methods. In comparison with other studies, several studies align with these findings. A previous study on Knowledge, Attitudes, and Practices (KAP) of HIV/AIDS prevention among secondary school students in Iran revealed that 71.2% of students displayed positive attitudes towards HIV/AIDS prevention, while 27.8% had negative attitudes (Mohebi et al., 2018). This positive attitude is crucial as it correlates with lower engagement in risky sexual practices, emphasizing the importance of knowledge and attitude in HIV risk perception and sexual behaviors among adolescents (Duru et al., 2020). Additionally, a study on adolescents' attitudes in Kansas found that males tended to have more liberal attitudes than females, with family type and classification influencing attitudes, highlighting the diverse factors shaping adolescent attitudes towards sexuality and health issues (Akello et al., 2023). Furthermore, research on species knowledge and environmental attitudes among students indicated that higher species knowledge positively influenced attitudes towards the environment, emphasizing the role of education in promoting awareness and positive attitudes towards biodiversity and nature conservation (Härtel et al., 2023).

With regards to the practices of HIV/AIDS prevention among secondary school students, the study found that a majority of respondents (59.5%) had a history of sexual intercourse, with a mean age at sexual debut of 14 years. This finding aligns with research conducted in Nigeria, where adolescents aged 15-24 years exhibited

high-risk sexual practices, with only 20.6% ever screening for HIV, indicating a gap in preventive behaviors (Idowu et al., 2023). Additionally, a study in Indonesia highlighted that adolescents aged 15-18 years, a vulnerable group to sexually transmitted infections, had a significant relationship between information sources, living environment, and age with knowledge about HIV/AIDS prevention, emphasizing the importance of education and awareness in this age group (Indah Mastikana et al., 2022).

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

The examination of knowledge levels revealed that a substantial majority 82.1% of participants possess a commendable understanding of HIV/AIDS and its prevention methods. This high level of awareness is encouraging, suggesting that ongoing educational initiatives and awareness campaigns have been effective. However, the presence of misconceptions underscores the necessity for targeted educational interventions to clarify these misunderstandings and reinforce accurate information.

Furthermore, the attitudes of secondary school students towards HIV/AIDS prevention were found to be mixed. While a 54.5% of students exhibited positive attitudes, a significant portion displayed negative or ambivalent views. This discrepancy indicates the need for comprehensive programs that not only educate but also foster supportive environments for discussing HIV/AIDS, thereby promoting healthier attitudes among students.

Lastly, the evaluation of awareness regarding HIV control measures revealed that while many students are informed about prevention practices, gaps remain in their application of this knowledge in real-life scenarios. The findings suggest that practical engagement, such as workshops and peer-led discussions, could enhance the effectiveness of the information provided and encourage proactive health behaviors

6.2 Recommendations

Based on the results of this study, the following recommendations are made:

i. Develop and implement comprehensive educational programs focused on HIV/AIDS that address both knowledge and misconceptions. These programs should utilize interactive teaching methods, such as workshops and peer-led sessions, to engage students effectively.

ii. Integrate HIV/AIDS education into the secondary school curriculum, ensuring it is relevant and age-appropriate. This should include topics on transmission, prevention strategies, and the importance of safe practices.

iii. Initiate campaigns aimed at fostering positive attitudes towards HIV/AIDS prevention. This can be achieved through storytelling, testimonials from peers, and involvement of role models who advocate for healthy behaviors.

iv. Leverage various media platforms, including social media, to disseminate accurate information about HIV/AIDS. This approach can help reach students outside the classroom and reinforce learning through accessible channels.

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APPENDICES I: QUESTIONNAIRE
KNOWLEDGE, ATTITUDES AND PRACTICES ON HIV/AIDS PREVENTION AMONG SECONDARY STUDENT IN RUANGWA DISTRICT

A QUESTIONNAIRE FOR SECONDARY SCHOOL STUDENTS IN RUANGWA

The following questions intend to collect data on knowledge, attitude and practices on HIV/AIDS and its prevention among secondary school students in Ruangwa district. The data collected will be used for the research purpose only. It is not necessary writing your name. Attempt all questions and be honest while responding to each question.

Part 1: Socio-demographic characteristics

1. Age…….
2. Sex : (1) Male (2) Female
3. Year of study (Form)……..
4. Name of your school ……
5. Ward …….

Part 2: Relation status:

6. Have you ever had sexual intercourse?

(a) Yes (b) No

7. If your answer in Qn 6 Yes, at what age did you had your first sexual intercourse? ……

8. If your answer in Qn 6 above is Yes, who was your first sexual partner?

(a) Fellow student

(b) Other age mate

(c) My Teacher

(d) Other adult

Part 3: Status of HIV/AIDS:

9. How do you rate the current situation/status of HIV/AIDS in Ruangwa district?

a. Not a problem

b. A small problem,

c. A serious problem

d. A very serious problem

e. Uncertain/don't know

Part 4: Source of information about HIV/AIDS:

10. Which sources of information do you use to get knowledge about HIV/AIDS and its prevention? You can tick more than one source of information.

- Television
- Radio
- Pamphlets on HIV/AIDS
- News papers
- Teachers
- Relatives

- Friends
- Religion organization/leaders
- Social media/internet

Part 5: Knowledge questionnaire: (choose the most correct answer: (**true or false or not sure**)

11. HIV is caused by bacteria (**true or false or not sure**)
12. AIDS has no cure (**true or false or not sure**)
13. There is Vaccine for HIV (**true or false or not sure**)
14. All HIV infected mothers give birth to HIV infected child (**true or false or not sure**)
15. Multiple sexual partners increase the risk of HIV infection (**true or false or not sure**)
16. Abstinence from sexual intercourse can prevent from HIV (**true or false or not sure**)
17. Being faithful to a single sexual partner can prevent from HIV (**true or false or not sure**)
18. Consistent and correct usage of condom prevents HIV (**true or false or not sure**)

Part 6: Altitude questionnaire: Express your level of agreement by putting a tick on the most correct answer!

19. I can do sexual intercourse if my partner doesn’t want to use condom.

(a) I agree (b) I strongly agree (c) I disagree (d) I strongly disagree (e) I don't know

20. The use of condom indicates a lack of trust in the partner's faithfulness.

(a) I agree (b) I strongly agree (c) I disagree (d) I strongly disagree (e) I don't know

19 The problems created by HIV/AIDS is exaggerated

(a) I agree (b) I strongly agree (c) I disagree (d) I strongly disagree (e) I don't know

20 AIDS patients should be isolated for the safety of others

(a) I agree (b) I strongly agree (c) I disagree (d) I strongly disagree (e) I don't know

21 Checking ones status of HIV is not as such important

(a) I agree (b) I strongly agree (c) I disagree (d) I strongly disagree (e) I don't know

Part 7: Practice questionnaire: For the following questions give your answer by putting a tick on the most correct answer.

21. Do you have a sexual exposure with opposite sex up to now?

(a) Yes (b) No

22. Have you ever shared sharp materials with others?

(a) Yes (b) No

23. Do you know where to go for HIV testing?

(a) Yes (b) No

24. Have you used condom during your first sexual intercourse?

(a) Yes (b) No

25. Did you use condom in your last sexual intercourse?

(a) Yes (b) No

26. From the ABC HIV preventive mechanisms which one works best for you?

(a) Abstinence (b) be faithfulness to one uninfected partner (c) Condom use

APPENDICES II

ETHICAL CLEARANCE FROM OPEN UNIVERSITY OF TANZANIA

THE UNITED REPUBLIC OF TANZANIA

MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY

THE OPEN UNIVERSITY OF TANZANIA

Ref. No OUT/ PG201901219 **13th March, 2023**

Regional Administrative Secretary,
Lindi Region,
P.O Box 1054,
LINDI

Dear Regional Administrative Secretary,

RE: RESEARCH CLEARANCE FOR MS SCOLA ANILOZI MWALYANZI, REG NO: PG201901219

2. The Open University of Tanzania was established by an Act of Parliament No. 17 of 1992, which became operational on the 1st March 1993 by public notice No.55 in the official Gazette. The Act was however replaced by the Open University of Tanzania Charter of 2005, which became operational on 1st January 2007.In line with the Charter, the Open University of Tanzania mission is to generate and apply knowledge through research.

3. To facilitate and to simplify research process therefore, the act empowers the Vice Chancellor of the Open University of Tanzania to issue research clearance, on behalf of the Government of Tanzania and Tanzania Commission for Science and Technology, to both its staff and students who are doing research in Tanzania. With this brief background, the purpose of this letter is to introduce to you **Ms. Scola Anilozi**

Mwalyanzi, Reg. No: PG201901219) pursuing **Master of Arts in Monitoring and Evaluation (MAME)**. We here by grant this clearance to conduct a research titled **"Knowledge, Attitudes and Practices toward HIV/AIDS Prevention among Secondary Students in Ruangwa District".** She will collect her data at Ruangwa District Council in Lindi Region from 14th March to 14th April 2023.

4. In case you need any further information, kindly do not hesitate to contact the Deputy Vice Chancellor (Academic) of the Open University of Tanzania, P.O.Box 23409, Dar es Salaam. Tel: 022-2-2668820.We lastly thank you in advance for your assumed cooperation and facilitation of this research academic activity.

Yours sincerely,

THE OPEN UNIVERSITY OF TANZANIA

Prof. Magreth S.Bushesha

For: VICE CHANCELLOR

APPENDICES III

PERMISSION LETTER FOR DATA COLLECTION FROM RUANGWA DISTRICT COUNCIL

THE UNITED REPUBLIC OF TANZANIA
PRESIDENT'S OFFICE
REGIONAL ADMINISTRATION AND
LOCAL GOVERNMENT

RUANGWA DISTRICT COUNCIL

In reply please quote

Ref. No. HWR/E.1/VOIXX/ 134 18st April, 2023

RECTOR.
0PEN UNIVERSITY LINDI
P.O.BOX. 1054
LINDI.

RE: REQUEST WORK

The above heading is referred.

With this letter kindly be informed that the place for research work for your student **Biscola Anilozi Mwalyanza** who is student pursuing **Master of Arts in Monitoring and Evaluation** is available.

Therefore we are ready to accept the mentioned student for her Research work placement. Conduct research secondary schools at Ruangwa District. The title of his research is Assessment Knowledge, Attitudes and Practices towards HIV AIDS prevention among Secondary School Students in Ruangwa District.
However Ruangwa District Council will not bear any cost of her living for the whole period of stay at our organization.

Thanks.

Seleman A. Ng'ambage
For: DISTRICT EXECUTIVE DIRECTOR
RUANGWA.

DISTRICT EXECUTIVE DIRECTOR,
RUANGWA DISTRICT COUNCIL
P. O. Box 51,
RUANGWA

Copy: **Biscola A. Mwalyanza** Report to HOD –DESO

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