UNIVERSITY FOR DEVELOPMENT STUDIES

ASSESSING HIV/AIDS KNOWLEDGE, SEXUAL RISK BEHAVIOURS AND ATTITUDES TOWARDS HIV TESTING OF UNDERGRADUATE STUDENTS AT UDS CAMPUS, NYANKPALA

BY

VITALIS ABEIYEL YANGME

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UDS/MPH/0024/19

THESIS SUBMITTED TO THE DEPARTMENT OF GLOBAL AND INTERNATIONAL HEALTH, SCHOOL OF PUBLIC HEALTH, UNIVERSITY FOR DEVELOPMENT STUDIES, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF PUBLIC HEALTH DEGREE

JULY, 2021

DECLARATION

Student's Declaration

I hereby declare that this submission is my work for Masters of Public Health (MPH) and that, to the best of my knowledge, it contains no material previously published by another personal nor material which has been accepted for the award of any other degree of the university, except where due acknowledgement has been made in the text.

Vitalis Abeiyel Yangme Signature…… Date…14/12/2021……..

Supervisor's Declaration

I hereby declare that the preparation and presentation of the thesis was supervised in accordance with the guidelines on supervision of dissertation/thesis laid down by University for Development Studies.

Professor Yidana Adadow Signature…….. Date…14/12/2021…

ABSTRACT

This study demonstrated that majority of the enrolled students at the UDS Nyankpala campus had inadequate HIV knowledge regarding its various modes of transmission with an average knowledge score of 10.36 ± 3.0 (mean ± *SD*). Christians (11.09 ± 3.31), students 25 years and over (10.77 ± 3.31) and level 300 students (11.53 ± 3.46) had significantly higher knowledge of HIV in their respective sub groups. However, none of the socio-demographic factors had any effect on the HIV knowledge levels of students. In addition to this, the sexual risk behaviours of students, their attitudes toward HIV testing and attitudes toward people living with HIV had no association with their level of HIV knowledge. The evaluation of each student's HIV knowledge scores suggests the need for more comprehensive HIV/AIDS education in tertiary institutions; most especially, increased education on effective condom use and HIV testing as majority of the sexually active students failed to use a condom during their last sexual activity and had never been tested for HIV (79.1%). However, most of the students showed positive attitudes towards testing for HIV as 67.9% showed interest in testing for HIV. The students showed moderate attitudes towards people living with HIV as 33.4% indicated that they would keep the same level of contact if they found out that someone they knew was infected, while 32.5% stated that they were not sure how they would react and communicate in a similar situation. Furthermore, 54.3% of the students assessed their risk of HIV to be very low while 2% assessed their risk of HIV as very high. The report recommends that sexual and reproductive health education be implemented by the Ministry of Education in primary and secondary schools. In addition, specialized and supplemental seminars on this topic should also be set up in universities and high schools to help raise HIV awareness.

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I thank the almighty God for this opportunity given to me, for without Him this would not have been possible. His abundant Grace, love and protection saw me through and His name will forever be glorified.

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DEDICATION

This work is dedicated to God for seeing me through all these years. It is also dedicated to my family, especially to my father Mr. James Yangme for his immense support in my education both financially and spiritually.

LIST OF ABBREVIATIONS

AIDS Acquired Immunodeficiency Syndrome

ANOVA Analysis of Variance

ART Antiretroviral treatment

CDCP Centres for Disease Control and Prevention

CHRPE Committee on Human Research, Publications & Ethics

EDHS Ethiopia Demography Health Survey

HBM Health Belief Model

HIV Human Immunodeficiency Virus

HRW Human Rights Watch

KAP Knowledge, Attitude, and Practice

KNS Knowledge Score

KQ Knowledge Questionnaire

PLWHA People Living with HIV/AIDS

RCAP Rural Centre for AIDS/STD Prevention

SCT Social Cognitive Theory

SPSS Statistical Package for the Social Sciences

STIs Sexually Transmitted Infections

TB Tuberculosis

TRA Theory of Reasoned Action

UDS University for Development Studies

UNAIDS Joint United Nations Programme on HIV/AIDS

WHO World Health Organisation

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CHAPTER ONE

INTRODUCTION

1.1 Background

The human immunodeficiency virus (HIV) remains a significant global public health concern, claiming about 33 million lives so far due to acquired immunodeficiency syndrome (AIDS), and an estimated 38.0 million people infected with the virus as of 2019 (World Health Organisation [WHO], 2020). The HIV epidemic has grown to become one of the leading causes of death worldwide since it was first diagnosed in 1984, thereby putting an immense strain on the health-care system and the economy (Kipkorir & Langat, 2019).

HIV is a retrovirus that infects immune system cells and destroys or impairs their function thereby making them more susceptible to infection while AIDS is the most severe level of HIV infection which normally develops after 10 to 15 years provided no treatment is taken (H. A. Choudhary et al., 2015). The virus can be spread through unprotected and close contact with the bodily fluids of several people, including breast milk, semen, blood and vaginal secretions as well as transmission from mother to child through pregnancy and delivery (WHO, 2020).The World Health Organisation (2020) added that individuals cannot become infected by normal daily interaction with others, shaking hands, hugging, kissing or exchanging personal items, water, or food.

The inclusion of the HIV pandemic in the Global Fund which was created in 2002, attested to the high level of attention it received globally (Ebenezer et al., 2021). From 2000 to 2011, multilateral, bilateral, foundations, and non-governmental organisations donated about $51.6 billion to help in the fight against HIV (Murray et al., 2014).

According to Mkumbo (2013), the epidemic in Sub-Saharan Africa continues to affect all individuals and societies and has a deep impact on the economic and social development of the region. The 2005 Ethiopia Demography Health Survey (EDHS) found that 1.4% of Ethiopian adults aged 15–49 were HIV-positive, while the 2011 EDHS found a prevalence of 1.5%, ranging from 4.2% in urban areas to 0.6% in rural regions (Sahile et al., 2015).

It's just as important to dispel misconceptions about HIV transmission as it is to raise awareness of the true modes of transmission. Both are crucial in determining how preventive efforts have changed people's views (Ugarte et al., 2013). Research indicated that the age group between 15 and 24 years happen to be the largest group infected with the virus (H. A. Choudhary et al., 2015). Youths account for about 50% of all new HIV infections per year, and female youths in Sub-Saharan Africa tended to be the most infected as compared to the male youth (Kipkorir & Langat, 2019). The women's high rates of HIV are attributed to women's biological vulnerabilities to HIV transmission, as well as socially and culturally sanctioned gender biases (Higgins et al., 2010a).

Young people are normally at risk due to society's high unhealthy sexual behaviours, attitudes, and constraints (Oppong & Oti-Boadi, 2013). According to a survey conducted in Ethiopia, approximately 30% university students, of both sexes were sexually active; and were dealing from the consequences of unprotected sex, such as sexually transmitted infections (STIs) and abortion (Tegabu et al., 2011). A qualitative study conducted in universities found that one of the key causes was due to insufficient knowledge about HIV/AIDS (Sahile et al., 2015). Sexual risk behaviour is the second leading cause of harm in developing countries with high mortality rates, resulting in 10.2% of the worldwide disease burden (Wagenaar et al., 2018). A research study conducted in Kumasi among HIV positive participants concluded that they engaged in high rates of sexual risk behaviours which therefore accounts for the uninterrupted HIV transmission in Ghana (Ncube et al., 2012).

1.2 Problem Statement

According to Ali et al. (2019), about 310,000 people in Ghana were reported to be living with HIV in 2017. The population living with HIV as well as the number of new cases in Ghana each rose by 3% in 2019 compared to the previous year, but the deaths rate fell by 4% (Ebenezer et al., 2021). Women living with HIV/AIDS greatly outweigh the number of males living with HIV/AIDS in Ghana (Owusu, 2020). According to qualitative and quantitative research conducted in Ghana, university students' lifestyles placed them at a high risk of contracting HIV (Maswanya et al., 2009). High-risk HIV behaviours, such as unprotected sex and multiple relationships, thrive in the university environment. This environment, combined with the lack of parental control, provides a good opportunity for young people transitioning from puberty to adulthood to explore the boundaries of their newly discovered independence through sexual experimentation (Shiferaw et al., 2014). Multiple relationships, irregular condom use, and having sexual intercourse when under the influence of drugs or alcohol are all common examples of sexual experimentation.

1.3 Justification

The resultant attitude-behaviour gap has prompted this research to focus on better comprehending the drivers of youth sexual risk behaviours. Even though numerous studies have been conducted to investigate the sexual risk behaviours of the Ghanaian youth, only a few studies have assessed the HIV risk sexual knowledge, behaviours, and attitudes. There haven’t been any reports evaluating HIV knowledge, attitudes and sexual risk behaviours among undergraduate students in the study area so far. Understanding this research will help lay the groundwork for future enquiries into the behavioural factors that lead to HIV transmission. Therefore, assessing students' sexual risk behaviours, knowledge and attitudes on HIV would provide policymakers with information to plan and enforce effective HIV prevention initiatives for university students.

1.4 Research questions

This study will provide clear answers to the following research questions:

1. What is the level of HIV knowledge of transmission among undergraduate students at UDS Nyankpala Campus?
2. What is the effect of sociodemographic factors on HIV knowledge among undergraduate students at UDS Nyankpala Campus?
3. What is the association of sexual risk behaviours and HIV testing attitudes with HIV knowledge among undergraduate students at UDS Nyankpala Campus?

1.5 General objective

To assess the HIV/AIDS knowledge of transmission, sexual risk behaviours and attitudes towards HIV testing of undergraduate students at UDS Nyankpala Campus.

1.6 Specific objectives

1. To examine the level of HIV knowledge of transmission among undergraduate students at UDS Nyankpala Campus.
2. To determine the effect of sociodemographic factors on HIV knowledge among undergraduate students at UDS Nyankpala Campus.
3. To examine the association of sexual risk behaviours and HIV testing attitudes with HIV knowledge among undergraduate students at UDS Nyankpala Campus.

1.7 Conceptual framework

It is really necessary to comprehend the context of HIV knowledge, attitude and behaviour because it is the initial point towards a change in behaviour from risk-taking to safer sex. The types and number of partnerships, sexual actions, and orientation, as well as other characteristics such as age during the first sexual encounter, several sexual partners, unsafe

sexual intercourse with at-risk sexual partners, and untreated sexually transmitted can all be considered when assessing sexual risk behaviours (Wagenaar et al., 2018).

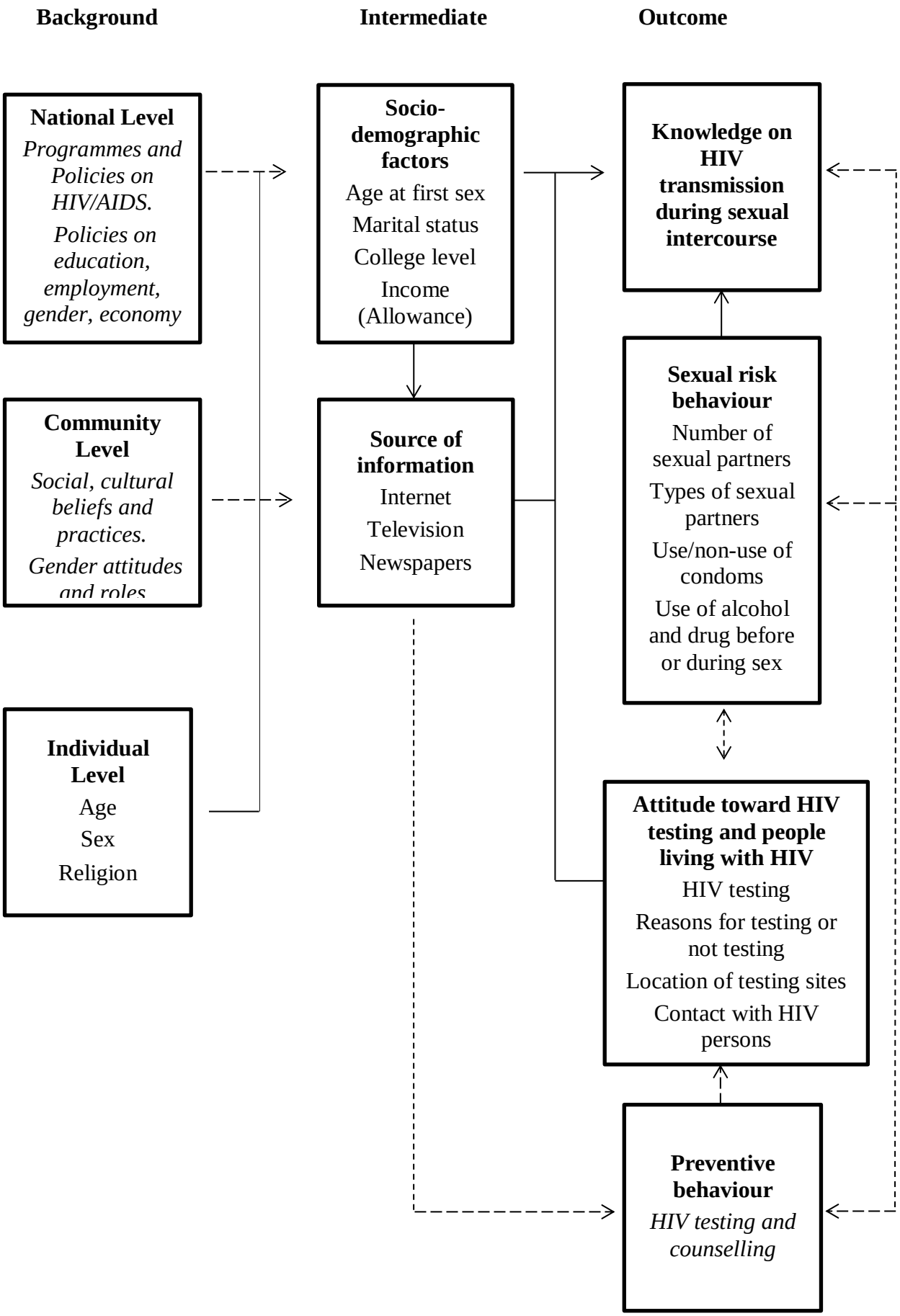
Background
Intermediate
Outcome
National Level
Programmes and Policies on HIV/AIDS.
Policies on education, employment, gender, economy
Community Level
Social, cultural beliefs and practices.
Gender attitudes and roles
Individual Level
Age
Sex
Religion
Socio-demographic factors
Age at first sex
Marital status
College level
Income (Allowance)
Source of information
Internet
Television
Newspapers
Knowledge on HIV transmission during sexual intercourse
Sexual risk behaviour
Number of sexual partners
Types of sexual partners
Use/non-use of condoms
Use of alcohol and drug before or during sex
Attitude toward HIV testing and people living with HIV
HIV testing
Reasons for testing or not testing
Location of testing sites
Contact with HIV persons
Preventive behaviour
HIV testing and counselling

Figure 1.1: A conceptual framework for the study of HIV/AIDS Knowledge, Sexual risk behaviours and Attitudes towards HIV Testing among undergraduate students in UDS Nyankpala Campus.

The solid lines represent the associations that are being researched in this paper; the dotted lines represent possible associations that are not being investigated in this paper. The factors in italics are not measured in this study (Akwara et al., 2003).

The conceptual framework (Fig. 1.1) was adopted and modified from Akwara et al., (2003) research and it identifies three outcome variables: HIV/AIDS knowledge, sexual behaviour and attitudes towards HIV testing. The model depicts the potential relationships between a variety of background elements at the national, community, and individual levels, as well as intermediate sociodemographic, HIV/AIDS knowledge sources and the outcome factors. Even though they are not examined in this research, political commitment to HIV/AIDS prevention at the national level can have an impact on people's access to information and services such as voluntary counselling and testing or treatment for STIs.

Individuals' understanding of HIV/AIDS, sexual behaviour, and attitudes toward HIV testing may be influenced as a result of this. Ghana's efforts to limit the spread of HIV demonstrate the necessity of political will and dedication (Ghana AIDS Commission, 2019). Other policies and programs nationwide targeting the economy, education, employment, and gender may also affect HIV/AIDS knowledge. These policies may have an impact on the existence of community-level health care, the distribution of economic resources, transportation, gender roles, communication, and women's empowerment. Masculinity and femininity beliefs may influence the identity and self-concept of a person at a communal level, and hence have a significant impact on his or her involvement in sexual decision-making (Akwara et al., 2003). For example, social standards may describe a "good woman" as

someone oblivious to sex or passive during sexual experiences, while a "real man" is someone who has had multiple sexual partners.

Individual- level factors such as gender, present age, religion, and residence while in the university are included in the conceptual framework and may influence HIV knowledge. Evidence from the literature suggests that only men are assumed to engage in sexually risky behaviour on purpose. The vulnerability model holds that a socially disadvantaged, monogamous, and naive woman becomes infected as a result of her partner's conduct rather than her own (Higgins et al., 2010b). Because of their biological vulnerability as well as their poor socio-cultural and economic status, women are more than twice more likely than males to be infected with HIV after having sexual contact with an HIV positive partner. Ghana's HIV Fact Sheet 2019 recorded 219,986 females living with HIV while males were only 122,321 (*Ghana AIDS Commission*, n.d.).

The age of a person and his/her religion are other factors that may influence HIV knowledge. According to studies, the age group 15 to 24 is the most likely to be infected with the virus (Oppong & Oti-Boadi, 2013). Religion can influence HIV awareness through intermediary factors such as age during a first sexual encounter, marital status, and access to information and resources. Takyi (2003) researched to determine if a woman's HIV/AIDS knowledge is linked to her religious affiliation, and if that affiliation encourages HIV prevention attitudes. Religious affiliation, according to the findings, boosts women's knowledge and awareness of HIV/AIDS.

The background factors of the conceptual framework are assumed to influence knowledge through a variety of intermediate elements. These intermediary characteristics could be sociodemographic (e.g., age at first sex, marital status, educational attainment (university level), and employment status) or psychosocial (like access to information, knowledge,

attitudes and beliefs) (Akwara et al., 2003). A study conducted by Shiferaw et al. (2014) indicated that a significant number of students that had participated in the study and had begun sexual activities at an early age in both males and females were more likely to have several sexual partners.

Although formal education may influence HIV/AIDS knowledge, behaviour, and attitude, the evidence is rather conflicting. Choudhary et al. (2015) research also indicated that female university students in higher academic years (third and fourth year) had a higher risk perception of HIV/AIDS than females in the first and second year. The perception of the risk of HIV infection and sexual behaviour is influenced by marital status. While women not married may be able to negotiate for sex with protection, married women have additional problems due to the fear of being accused of promiscuity by their partners, which could result in unpleasant concerns such as separation or divorce (Akwara et al., 2003). University students are typically financially insecure because most of them are unemployed at this stage. As a result, monetary incentives from men (especially older) or women have a strong impact on them accepting to engage in sexual risk behaviours, including the absence of condom use, as other studies have also shown (Sahile et al., 2015).

High levels of awareness of HIV may result from mass media exposure to HIV/AIDS information, which can influence sexual behaviour and attitude. According to a study conducted in Ghana on the degree of knowledge about HIV/AIDS, television and radio were the primary sources of information for the vast majority of people (Kipkorir & Langat, 2019).

A study conducted in South Africa between 2004 and 2008, revealed that people with better HIV/AIDS knowledge levels had previously been tested for HIV (Mall et al., 2013). According to the findings of a study conducted in Ghana, over 90% of students reported not

having had an HIV test, even though more than 45% of them knew where to get counselling and testing services (Oppong & Oti-Boadi, 2013).

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is concerned with the review of relevant literature to the research topic understudy. It takes into consideration the conceptual review, empirical review and a theoretical review and framework that can also be used for the study.

2.2 Conceptual review

2.2.1 HIV/AIDS

The Human Immunodeficiency Virus (HIV) is a major global public health hazard, claiming over 33 million lives to date (WHO, 2021). According to the Centres for Disease Control and Prevention (CDC), HIV is a virus that attacks the body's immune system (2021). By assaulting the immune system, it weakens the body's defences against numerous diseases and cancers. The virus destroys and impairs the function of immune cells, leading to immunodeficiency in the infected person over time. As a result, those with weakened immune systems are more vulnerable to infections, cancers, and illnesses that people with robust immune systems can resist (WHO, 2021).

HIV can be transmitted through the exchange of bodily fluids such as blood, breast milk, sperm, and vaginal secretions between infected persons. It can also be spread from mother to child during pregnancy and delivery, as well as through the exchange of drug-injecting needles. Individuals cannot become infected regularly by kissing, hugging, shaking hands, or exchanging personal goods, food, or water (WHO, 2021). It cannot also be transmitted by the air, insects, or pets (CDC, 2021). It is critical to remember that HIV-positive persons who are on antiretroviral medication (ART) and are virally suppressed cannot transmit the virus to

their sexual partners. Early access to antiretroviral medication (ART) and encouragement to continue using it are therefore critical not just for improving HIV patients' health but also for avoiding HIV transmission (WHO, 2021).

According to the WHO, the signs and symptoms of HIV vary depending on the stage of infection (2021). People at the early stage of HIV infections (Acute HIV Infection) have a lot of HIV in their blood and are thus extremely infectious (CDC, 2021). In the first few weeks after infection, people may suffer flu-like symptoms such as fever, headache, rash, or sore throat. This is the body's normal reaction to infection. Some people, on the other hand, may not feel sick immediately after the procedure or at all (CDC, 2021).

Although HIV infected patients are most infectious in the first few months following infection, many may not recognize they are ill until it is too late (WHO, 2021). When an infection weakens the immune system, signs and symptoms such as swollen lymph nodes, weight loss, fever, diarrhoea, and cough appear. If they do not receive treatment, they may develop serious diseases such as tuberculosis (TB), cryptococcal meningitis, severe bacterial infections, and malignancies such as lymphomas and Kaposi's sarcoma (WHO, 2021).

The second stage is chronic HIV infection, often known as asymptomatic HIV infection or clinical latency. At this moment, HIV is still active, but it reproduces at a very low rate. People may not feel any symptoms or become unwell throughout this period.

Acquired Immunodeficiency Syndrome (AIDS) is the most severe form of HIV infection, and it can take several years to develop if not treated. AIDS is a disease caused by HIV that weakens your immune system (Planned Parenthood, 2021). AIDS is defined by the emergence of certain cancers, infections, or other serious and long-term clinical symptoms (WHO, 2021). People with AIDS have severely impaired immune systems, which leads to an

increasing number of deadly diseases known as opportunistic infections. They generally survive without therapy for three years (CDC, 2021).

Because there is no effective cure for HIV, once infected, a person will be infected for the rest of his or her life. HIV, on the other hand, is treatable with the proper medical treatment (CDC, 2021). That is, HIV patients who receive effective medicine have a better chance of living a long and healthy life.

2.2.2 Sexual Behaviour

Risky sexual activity is defined as sexual activity that increases a person's susceptibility to sexual and reproductive health issues such as sexually transmitted infections (STDs), human immunodeficiency virus (HIV), undesired and unexpected pregnancy, abortion, and psychological anguish (Tadesse & Yakob, 2015). Multiple sexual partners, early sexual starting, unprotected intercourse, inconsistent condom usage, and having sex with commercial sex workers are examples of such behaviours (Negeri, 2014; Kassa et al., 2016). Furthermore, because drugs affect people's judgment before and during sex, they may engage in unsafe sexual behaviour (Woolf-King, 2013). This has a specific impact on condom use (Tadesse & Yakob, 2015). According to Woolf-King & Maisto (2011), one of the most prevalent variables that elevate the risk of HIV infection is alcohol drinking.

According to studies, teens are more prone than adults to indulge in risky sexual practices (Luster & Small, 1996). Peer pressure to experiment with sex, a lack of parental support, and a lack of basic information and fundamental ability to deal with their emotions can all contribute to unsafe sexual behaviour (Tadesse & Yakob, 2015). Such hazardous sexual habits put young people at increased risk of contracting HIV/AIDS (Kassa et al., 2016).

2.2.3 Vulnerability of University Students

According to studies, HIV/AIDS is prevalent among young adults aged 15 to 29 (Agyemang et al., 2012; Masoda & Govender, 2013). Over half of all new infections occurred in those aged 15 to 24, which is the age range in which the majority of university students are enrolled (CDCP, 2002; Simelane, 2005). Every day, 6,000 young individuals are infected with HIV (CDCP, 2002). At this age, they are sexually active. Gokengin et al. (2003) found that Turkish college students were more likely to engage in sexual activity.

University life tends to coincide with a stage in which the adolescents are more independent of their parents but have not yet assumed adult role responsibilities. They have the opportunity to engage in exploration and experimental activities in a variety of adult-oriented topics. According to Arnett (2001), around 80% of college students in the United States had engaged in sexual activity. Pleasure, opportunity, curiosity, peer pressure, as proof of attractiveness and popularity, to feel grown-up, and as a way of resisting parental and religious authority were among the reasons offered. Sexual intercourse is viewed as a means for boys to demonstrate their manhood (Jaffe, 1998). Most teenagers participate in sex for the wrong reasons, as a coping technique to express and satisfy non-sexual needs and to achieve intimacy in romantic relationships (Hedgepeth & Helmich, 1996).

Unfortunately, careless sexual activity can lead to unwanted pregnancy and the acquisition or spread of sexually transmitted infections such as HIV/AIDS (Simelane, 2005).

2.3 Theoretical framework

AIDS has progressed into the deadliest disease of the period, with no current cure. Historically, the illness was linked to homosexuals, although it is increasingly widespread among heterosexuals. It is spread from one infected person to another by unprotected sex, pregnancy, and lactation, as well as contact with infected blood via an open wound

(Nomcebo, 2015). Given the lack of a cure and the rate at which the disease is spreading, the focus is currently on infection prevention (Norton & Dawson, 2010). As a result, prevention has an educational component, and research has focused on preventing HIV infection through education of potential high-risk groups. The idea is that increased information will result in a dramatic shift in sexual behavior and practices among sexually active people (Nomcebo, 2015). As a conceptual framework, this study used Nomcebo's Knowledge, Attitude, and Practice method (KAP) (2015). Changes in knowledge and attitudes, according to this method, lead to changes in behavior. It states that one's HIV/AIDS knowledge, attitudes, subjective norms, and current practices influence and predict one's AIDS-related behavioural decisions and outcomes. This method is predicated on the idea that health-related behaviours are the outcome of an individual's rational, conscious, and consistent decision-making process. Several theoretical models on health-related behaviours, particularly those in the social and psychological dynamics of AIDS transmission, have benefited from KAP (Gabusa, 2011). The health belief model (Fisher & Fisher, 1992), social cognitive theory, theory of reasoned action (Gabusa, 2011), theory of planned behavior and information-motivation behavioural skills model (RCAP, 2013), theory of personal investment, AIDS risk reduction model, and multi-component stage model are just a few examples (RCAP, 2013). The social cognitive theory (Bandura, 2014), the health belief model and the theory of reasoned action are the most commonly used theories (Alam & Sayitu, 2011).

2.3.1 The Social Cognitive Theory (SCT)

According to this theory, people are self-organizing, proactive, self-reflective, and self-regulating creatures that are shaped by external stimuli or propelled by hidden inner impulses (Nombeco, 2015). In this theoretical perspective, human functioning is viewed as the product of a dynamic interaction of personal, behavioural, and environmental influences. People's

interpretations of the outcomes of their activity inform and affect their settings and personal characteristics, which in turn influence and modify subsequent conduct.

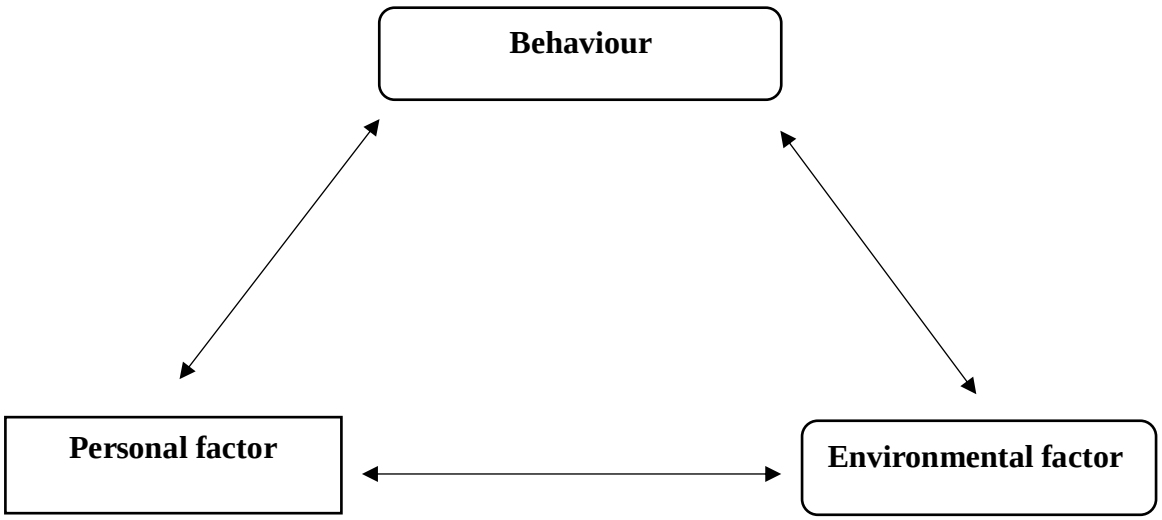

Figure 2.1: Cognitive, effective, and biological events
Source: Nombeco, 2015.

The SCT, in general, focuses on people's cognitive processes and examines how they evaluate options rationally. People have self-beliefs that allow them to have some influence over their thoughts, feelings, and behaviours. People's self-perception is a critical aspect in their ability to exercise control, according to Bandura's model of human behavior (Nombeco, 2015). Two essential components of the SCT model for reducing risk-reduction behavior are perceived self-efficacy and result expectations (Semple et al., 2019).

Self-efficacy, according to HIV Quest (2015), refers to an individual's confidence in executing a specific act, including confidence in overcoming impediments to doing the act. Self-efficacy beliefs can help people achieve more success and happiness in a variety of ways. It has an impact on the decisions people make and the actions they take. This means that people choose tasks in which they feel competent and confident while avoiding those in which they do not. Individuals who have attempted and failed in the past are more prone to

believe they have low self-efficacy (Bandura, 2014). Self-efficacy is a psychological trait that governs how much effort a person will put into a task and how long they will persevere in the face of challenges (Pajares, 2012). According to Bandura (2016), self-efficacy perception can be task-specific or generalized to many aspects of a person's life, but it is based on experience and is thought to be modifiable. Because the situations involved are unfamiliar to the participants, self-efficacy perceptions may be low (Bandura, 2016). Information concerning the risks of HIV/AIDS infection might cause dread or panic, and such emotional arousal might lead to self-efficacy problems in certain people.

Expected outcomes have also been shown to influence HIV risk-related behavior (Jemmott & Jemmott, 2012). Condom-related negative outcome expectations, such as the belief that they reduce pleasure, have been identified as inhibiting factors in a variety of populations (O'leary et al., 2012). As a result, given the impact of outcome expectations on individual behavior, the positive outcome expectation (the belief that condoms can reduce the risk of sexually transmitted and HIV infection) may be undermined by other community beliefs and norms, resulting in fewer people adopting safer sexual practices.

2.3.2 The Health Belief Model (HBM)

This is a psychological model aimed at explaining and predicting health-related behaviors (Rosenstock et al., 1994). It concentrates on people's viewpoints and attitudes. It is based on the belief that a person will take a health-related action (use condoms) if s/he believes that a negative health condition (HIV infection) can be avoided by taking a recommended action; has a positive expectation that by taking a recommended action, s/he will avoid a negative health condition (using condoms will be effective in preventing HIV); and believes that s/he can complete the task.

Perceived risk and net advantages are considered in this technique, which is divided into four categories: perceived vulnerability, perceived severity, perceived advantages, and perceived hurdles (Glanz et al., 2012). A person may contract HIV (perceived susceptibility), believe that the consequences of contracting HIV are severe enough to try to avoid (perceived severity), believe that the recommended action of using condoms, abstaining, or remaining faithful to one partner will protect them from contracting HIV (perceived benefits), and identify personal barriers to condom use (self-efficacy).

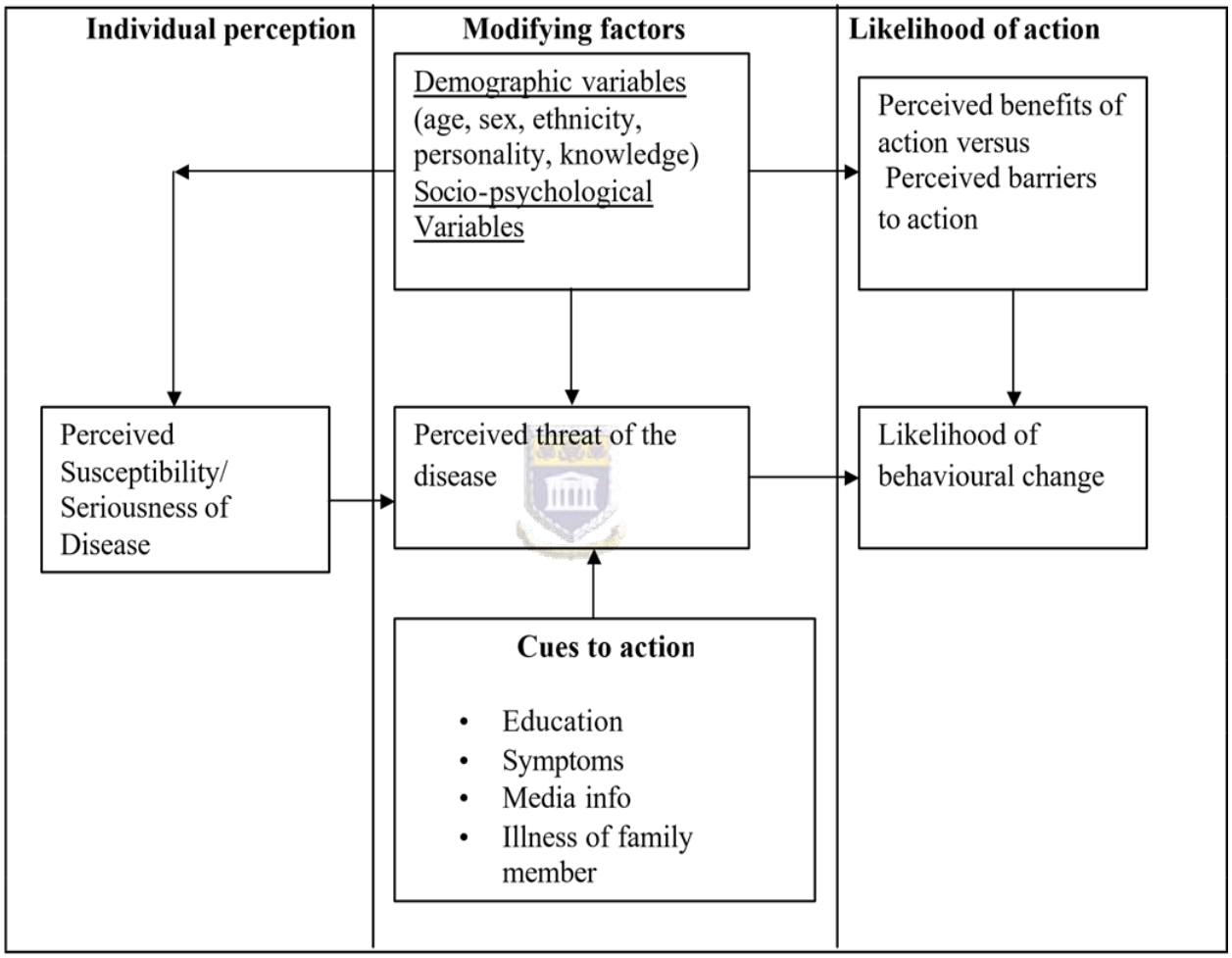

Figure 2.2: The Health Belief Model

Sources: adapted from Nombeco, 2015.

2.3.3 Theory of Reasoned Action (TRA)

This theory states that a person's behaviour is governed by his or her intention to carry out the action, which is a consequence of his or her attitude toward the activity and subjective norm. According to the TRA, the most reliable predictor of behaviour is a person's intention to behave (Luszczynska & Schwarzer, 2015). A person's intention is defined as their motivation to behave in a given way, and it reflects how hard they are willing to work to attain that behaviour (Alam & Sayuti, 2011). Their subjective norms (beliefs about what significant others will think of the conduct) and incentive to follow the others; and their perceived behaviour control (people's judgments of their capacity to do a given activity) are all elements that influence intent (Quintal et al., 2010).

Theory of Reasoned Action framework

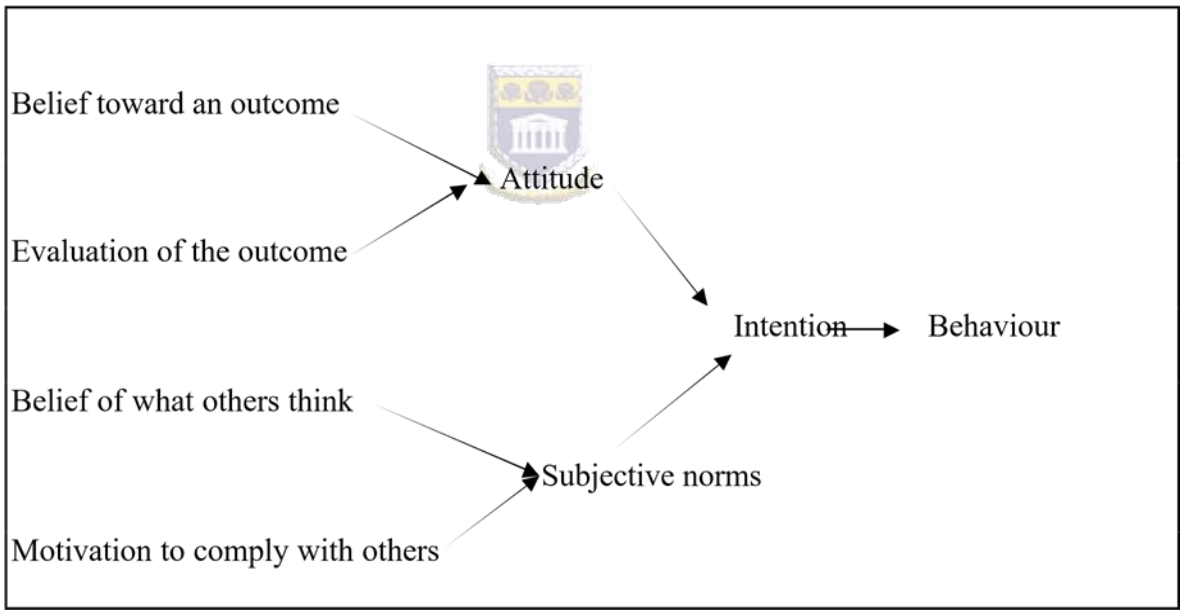

Figure 2.3: Theory of Reasoned Action Framework
Source: Quintal et al., 2010.

Jackson et al. (2016) advocated for the application of the TRA to look into how group norms influence HIV-related behaviour. It's worth emphasizing, though, that given conduct may or

may not follow from a given objective. Some people will begin to change their behaviour, while others will halt at the stage of intention (Bandura, 2014). This can be seen when a person understands the importance of losing weight and wants to do so but never gets around to doing so (Carter et al., 2012).

2.4 Empirical Literature Review

2.4.1 Knowledge of HIV/AIDS

Several studies on AIDS awareness among adolescents and adults across cultures have indicated moderate to high levels of awareness (Asante, 2013). Knowledge is acquired through a learning process that might include formal or informal education, personal experience, and sharing of experiences with others. The origins of the illness, how HIV may be spread and avoided, the illness's symptoms, curability, identifying persons at risk, and HIV/AIDS policy issues are all important components of HIV/AIDS knowledge (Gillard et al., 2011). Because they will be teachers, university students must be well-versed in current knowledge on the disease. Teachers have been designated as a group that is well-positioned to educate and nurture youngsters about HIV/AIDS (Zwane, 2012).

Most HIV/AIDS knowledge studies reveal that the majority of respondents have a high level of HIV/AIDS knowledge (Asante, 2013), and as Zwane (2012) points out, the most fundamental shift in the preceding decades is that the majority of African youth have grown better knowledgeable about HIV/AIDS. According to Zwane, respondents have exhibited a deficit in numerous areas by pondering in either erroneous replies or uncertainty by responding with "do not know" (2012). Pitpitan et al. (2012) revealed indications of misinformation in the setting of high HIV/AIDS knowledge in Cape Town's black townships. In comparison to those with no education, respondents' educational levels show that primary education makes a considerable difference in HIV/AIDS knowledge (Oladepe & Fameyi,

2011). There is a lot of self-perceived and true ambiguity about HIV/AIDS, according to Spinelli et al. (2020). This research focuses on university students who want to become school-aged children's teachers, in which case accurate HIV/AIDS knowledge is critical to dispel myths, reduce associated fear and anxiety, change risky behavior, and create a more humane and compassionate response to people living with the disease (Zwane, 2012).

Traditionally, it was considered that when people were given information, they would quickly modify their behavior. However, studies have demonstrated that in the HIV situation, knowledge alone may not always translate into appropriate sexual behavior changes (Asante, 2013). These findings do not rule out the importance of HIV awareness. The Rural Centre for AIDS/STD Prevention (RCAP) discovered that knowledge is critical in the cognitive processing of information in the attitude-behavior link (2013). According to Olapede and Fameyi (2011), a better understanding of HIV/AIDS had a positive impact on both preventative behavior and attitudes toward people living with the disease. According to UNAIDS (2011), information is crucial in assisting people in gaining a thorough awareness of HIV transmission and prevention, which are the first steps in reducing the risk. Condom use was influenced by a lack of understanding in Asante (2013), where respondents stated that condoms were useless if both parties were infected. As a result, understanding HIV/AIDS is critical since assimilation necessitates knowledge of the subject of interest in each step of the intervention to be carried out. Even though most groups appear to have basic knowledge of HIV/AIDS, there is widespread agreement that there are misconceptions concerning HIV's origins and transmission. This results in an inability to detect HIV infection susceptibility (Volk & Koopman, 2011). Swazis, in general, have a strong cultural identity, and as a result, many of them cannot let go of their beliefs in disease causation, such as being poisoned by a neighbour. These cultural misconceptions may obstruct people's perceptions of vulnerability to HIV/AIDS and their knowledge of the disease. To overcome myths and

misconceptions, knowledge is a precondition in the HIV preventive strategy (Kirby, et al., 2005), yet it cannot ensure behavior change on its own (Nombeco, 2015). A survey of the target group's HIV/AIDS knowledge and attitudes helps understand the group's response to HIV/AIDS and in guiding preventative programs.

2.4.2 Factors that influence people's ideas towards HIV/AIDS

Many principles in learning theories are shared, including personalization, susceptibility, efficacy, social norms, and skills. These concepts are crucial because they influence the acquisition, retention, and application of knowledge, particularly knowledge about HIV/AIDS. Some of the concepts that influence one's understanding are briefly discussed here;

2.4.3 The source of information

The credibility of the source of information is as important as the information to be learned. This is because the educator has an impact on several factors that influence or support knowledge acquisition, the learning environment, how information is presented, the educator's attitude toward the subject, the educator's level of comfort (Asante, 2013), and the educator's knowledge (Nombeco, 2015). The media reinforces peer pressure norms to "just do it," while social stigma for sexual consequences has vanished, all while adult supervision of youth has declined (Zwane, 2012).

2.4.4 The level of susceptibility

Many people ignore their vulnerability to health effects, particularly young adults, who are known for believing they are immune to harm (Spinelli et al., 2012). In Botswana, college students realized the danger of AIDS but thought their risk was low, according to a study. Ordirile (2012) also stated that the extent to which one holds an image of someone in the final stages of AIDS taught a powerful lesson about AIDS, which was in agreement with

Spinelli et al. (2012), who stated that the more one has a personal experience of a negative event, the more s/he perceives the future probability for him/her to be greater than average. People grasp knowledge if they realize that they are at risk and need the information (Nombeco, 2015).

2.4.5 Personalization

Learners must recognize the relevance of the material and believe it has meaning for them personally for it to be turned to knowledge. To aid personalization in HIV, relevance is a prerequisite (Asante, 2013). As Otaala (2010) argues, knowledge is only valuable if it links to the perceived problem. The information must connect with real-life situations; people must see something of themselves and apply it to their lives. According to Spinelli et al. (2012), the more a person believes an event to be, the more likely he or she is to believe that the event's likelihood is more than average for him or her. Educators must work to create activities that will assist pupils to realize the significance of issues that they believe are unimportant to their life (Nombeco, 2015).

2.4.6 Efficacy

Even if young people understand they are at risk for health problems, they may be sceptical about the usefulness of specific habits or goods indicated to reduce their risk. Young adults learn by watching others succeed, practising in role-plays, and participating in experiential learning tasks (Bandura, 2014). They will build confidence in the object's (condom's) or behaviour's effectiveness as a result of these tactics and desire to learn more about it. Young adults are caught in the middle of a political and cultural debate that makes them doubt condom effectiveness (Nombeco, 2015). In an attempt to dissuade sexual activity outside of monogamous, legitimate marriages, opposition groups engage in a disinformation campaign on condom effectiveness and safer sex practices. This tends to muddle the acquisition,

retention, and application of knowledge about condom effectiveness in AIDS prevention (Zwane, 2012).

2.4.7 Social norms

These are anticipated ways of acting and behaving to acquire or keep acceptability or status as a member of a given social group. A person willingly learns from what other members do or say while they are a part of a group. Individuals can obtain positive knowledge from peers if a group's discourses can be adjusted to positively impact others (Ochako et al., 2011). Peers can also be used to present a structured educational programme and to serve as positive role models in postponing sexual involvement (Bandura, 2014).

2.4.8 Knowledge on HIV/AIDS Policy

An HIV/AIDS policy is a statement made by an institution that recognizes the HIV/AIDS epidemic as a life-threatening epidemic that will affect the institution. It shows the institution's desire to protect students' and staff' human rights and dignity, to avoid discrimination and stigmatization, and to prevent infected people from transmitting the disease (Spinelli et al., 2020). According to Spinelli et al, the policy at the University of Zambia Copperbel notified students of how they would be treated if they were positive. A policy indicates the institution's commitment to what steps it will take to ensure protection. It allows management to respond effectively in the event of a student disclosing HIV positive status, rumours that a student or employee is HIV positive, or students refusing to work with an HIV positive student (Faimau, 2015). The policy encourages HIV-positive students to come forward without fear of being stigmatized or discriminated against (Asante, 2013). Students are made aware of the college's policy on confidentiality and are urged to reveal their status to receive the assistance they require. Having a policy can help students prepare psychologically for working with HIV-positive people who are afflicted or impacted. In the instance of Swaziland, the policy will also aid in the implementation of the country's national

HIV/AIDS policy, which was adopted in 2001 (Nomcobe, 2015). According to Nomcobe (2015), higher education institutions must have a clear curriculum statement on empowering students on HIV/AIDS knowledge, HIV competencies, and HIV safety. According to Nomcebo, the HIV ethos must infect and infect the institution, and teachers trained in a change agent institute will be change agents themselves. Every institution has a role to play in the HIV/AIDS problem, and its policy statement might reveal this. If the HIV/AIDS pandemic is as serious as it appears to be, teacher-education institutions must make it a major priority (Alam & Sayitu, 2011).

2.4.9 Attitude towards HIV/AIDS

Attitudes regarding AIDS and AIDS patients may be useful in predicting behaviour change (Bandura, 2014). Existing research, on the other hand, is inconclusive. Because of the stigma associated with the disease, most people's attitudes toward people living with HIV/AIDS are negative (Alam & Sayitu, 2011). The disease is linked to persons who are already stigmatized, such as prostitutes and homosexuals (Nomcebo, 2015). An individual's attitude toward a certain object or concept is defined as a reasonably constant, primarily taught disposition (Oladepe & Fameyi, 2011). It includes evaluative principles related to how people think, feel, and behave, as well as a cognitive, emotional, and behavioural component (Baron & Byrne, 2010). According to Spinelli et al. (2020), one's purpose to do conduct is influenced by one's attitude. What you know, how you feel, and what you do are all factors in your attitude. Normally, an individual's attitude toward certain conduct will be favourable if he or she believes that engaging in that action will result in a majority of positive outcomes (Nomcebo, 2015). It can be argued that people with HIV/AIDS have specific information and ideas; therefore they have sentiments about HIV, which determines their behaviour. Attitudes and conduct are linked; for example, if a person has a positive attitude regarding condoms, he or she is more likely to use them. According to Keller (1998), establishing a comfort zone

around a phenomenon requires a positive mind-set. The zone is described as familiar and comfortable to act without being nervous about the phenomenon being discussed. Stepping outside one's comfort zone, according to Keller, creates worry and anxiety. The attitude of university students is crucial because it will decide whether or not they will be comfortable discussing HIV concerns or even dealing with AIDS sufferers as teachers (Nomcebo, 2015).

Even though research has proven that delivering HIV/AIDS information does not help individuals modify their behaviours (Plusnews, 2013), the TRA and the theory of planned behaviour (Nomcebo, 2015) have highlighted the importance of attitude in executing a behaviour. Students at the university level are learning new skills and acquiring new attitudes. Theories of behaviour change such as the HBM and the TRA claim that meaningful behaviour change requires knowledge, attitudes, and beliefs (Alam & Sayitu, 2011). Knowing about HIV were connected to more supportive views toward those living with AIDS, according to Asante (2013), suggesting that knowledge fosters a more positive attitude toward the disease. People's attitudes, according to Otaala (2010), must be assessed since they give information for HIV/AIDS intervention. “Any educational campaign regarding HIV/AIDS prevention must be unequivocal about the disease's hazards, address social behaviours, dangerous social behaviours, and attitudes and perceptions,” Asante (2013:12) noted. According to Nomcebo (2015), the first step in battling the disease is to tell the truth, indicating that Africans have no option but to be honest, open, and embrace fundamental cultural changes. Researching university students' attitudes and knowledge will assist us in determining the real attitudes held by this part of our population.

2.4.10 Factors influencing attitude towards HIV/AIDS

According to the TRA, there are a variety of factors that influence one's attitude about performing behaviour. One's attitude is influenced by personal variables, peers, and social views (Oskowitz, 2012). According to Oskowitz, these factors are linked and have an impact

on one's attitude, resulting in a person's willingness to perform or not perform particular behaviours. College students' opinions will have an impact on the care they provide to disease patients. The following are some of the factors that were taken into account:

2.4.10.1 Personal factors

Some of the functions of attitudes are to protect people against their environment, to protect their self-image and provide an opportunity for them to pose their fundamental values (Deetlefs et al., 2013). This was shown by those exhibiting negative attitudes towards people living with AIDS in Peltzer (2013), who indicated that they could not afford to risk their lives by living next to someone with AIDS. In Ordirile (2010) study at the University of Botswana, students were found to have negative attitudes toward the disease and towards those affected, and there was general fear towards the stigmatized group. There were fears expressed regarding eating and working with infected students. This was in contrast to Singh (2016) who found that there was no evidence that women with HIV/AIDS may face greater stigmatization.

Zwane (2012) identified a strong element of denial, which was associated with stigmatisation. According to Zwane (2012) attitudes towards HIV/AIDS were characterized by confusion, fear and denial due to lack of openness about the disease, which was in line with UNAIDS (2010) where attitudes exhibited were indicative of fear, stigma and denial. Discourses from focus groups in Uganda indicated the severity of the stigma often associated with HIV/AIDS. For instance, a man specified that if his wife gets AIDS he would kill her, the children and himself (Human Rights Watch (HRW), 2013). While most discussions on attitudes toward AIDS consistently focus on these negative feelings, and do cause harm to the affected, people do exhibit positive attitudes (Bandura, 2014).

2.4.10.2 Social factors

Among the most influential societal influences are culture and education levels. Culture is the understanding that has been generated among individuals and groups about the nature of human relationships, how they should be established and how the social outcomes are predicted (Otaala, 2010). This definition of the role of culture in relationships sheds light on how Swazis perceive sexual relationships and how this could contribute to the spread of HIV/AIDS. For most African societies sexuality is a taboo subject for discussion especially not across gender lines (Ochako et al., 2011). Myths identified by Faimua (2015) in Botswana included that the long illness of a male was attributed to him breaking a taboo, such as sleeping with a widow or a woman in her menstrual cycle or one who has miscarried, and is not associated with sexual behaviour.

Sleeping with a virgin after a long illness was believed to heal the disease. According to Jackson (2016), most people will publicly endorse the moral norms of culture while at the same time behaving quite differently. He enumerates some high-risk beliefs that some cultures encourage to be; the use of force for the first sexual encounter to show that the woman is respectable, man can have many girlfriends, sex is something to do and not to talk about, sex is for male pleasure and not respectable for a woman to enjoy. In African culture, men wield more influence over women. They make sex decisions; therefore presumably, they should be the ones who promote safe sex (Hoosen & Collin, 2014). However, women's disempowerment in a patriarchal framework makes it impossible for them to follow this precept.

Societal pressures upon women to be married by a certain age causes them to engage in unprotected sex as they seek to find a mate at whatever cost, thus contributing to the spread of HIV/AIDS (Otaala, 2010). Most men do not favour the use of a condom and tend to disregard the woman’s preference for protected sex. Attitudes towards HIV/AIDS are also

influenced by the level of education, which counteract the effects of myths and misconceptions. Bandura (2014) found that 59% of those with no education believed that HIV couldn't be transmitted through touching an HIV infected person, against 81% with primary education and more than 90% among those with high school education. Asante (2013) argues that the ability of an individual to change behaviour to reduce the risk of HIV infection will be greatly influenced by the general attitudes towards HIV/AIDS of the social and cultural group to which s/he belongs (Kirby et al., 2015), and by the extent to which that group perceives HIV infection to be a threat. According to Jackson (2016), culture is dynamic and can therefore be influenced in positive ways. Kirby et al. (2015) concluded that it is possible to improve values and attitudes towards PLWHA through HIV educational programs. Efforts must be made to seek sensitive approaches that will promote discussion and involvement to influence culture positively.

2.4.11 Attitude towards condom use

The issue of condom use has dominated the attitudes of youth. Condom use in most South African societies, including Swaziland, is hindered by cultural beliefs that view them as symbols of promiscuity. To ask a partner to use a condom is tantamount to accusations or admittance of sexual promiscuity (Nomcebo, 2015). Condoms are commonly associated with the prevention of STIs, thus many people are reluctant to use them as they associate them with promiscuity (Gabusa, 2011; Otaala, 2010). Zwane (2012) identified negative attitudes associated with condom use to include the following; they are unpleasant to use and reduce sexual pleasure, imply promiscuity, useless because they easily break, can cause cancer when it enters the female, passage of HIV through holes in a condom, and that they are not necessary for a long term relationship. Kirby et al. (2015) found that most educational programs are effective in improving values and attitudes towards condom use.

Most respondents in Peltzer (2013) indicated not using condoms with their regular partners. Those who had sex with regular partners including sex workers also indicated not using a condom in the last sexual encounter (Peltzer, 2013). The common belief is that condoms are not necessary for a sexual encounter with a regular partner (HRW, 2013). Technical problems experienced by sexually active people when they use condoms were identified and the conclusion drawn was that some technical skills were needed to perform the behaviour (Otaala, 2010). Alam & Sayitu (2011) found that condom use among youth was on the increase and was also higher for young adults at risk of contracting HIV. The contrary was found, in the Bandura study (2014) in South Africa, where most male youths expressed fatalistic attitudes and high risks of susceptibility to HIV infection because of their attitude towards condom usage.

Gender inequality can also influence a person's attitude through the fear that accompanies HIV. Women find it difficult to negotiate condom use, even when they know that their husbands are involved in multi-relationships (Peltzer, 2013; van de Wijgert & Coggins, 2012; HRW, 2013). Fear prevents talk about safe sex, action against HIV and leads to silencing of discussion around HIV, and the symbolic practice of silence help to maintain trust within the relationship (Hoosen & Collins, 2014). HRW (2013) found that husbands refused to use condoms in Uganda. Women often have a positive approach to condom use but lack the skills or power to negotiate its usage.

2.4.12 Risky sexual behaviour

Risk-taking is seen as an important part of adolescent development since it fosters independence and maturity. Visser (2013) defines risk behaviour as "any action that is physically or emotionally dangerous, or that leads to developmental challenges in the young people engaged." Even after learning about HIV/AIDS, teenagers are more likely to participate in dangerous and health-threatening behaviours such as having a high number of

partners, having sex with strangers, having less than favourable views about condom usage, and having poor behaviour change (Uwalaka & Matsuo, 2012). According to Visser (2013), human behaviour is seldom so rational or linear; for example, most individuals do not complete all of the phases in the proper order or stop short of the objective, or return to earlier behaviour, or they never act. Individuals may believe they have utterly failed in all of these scenarios, resulting in an "all or nothing" mind-set.

Alcohol and drug use, as well as sexual desire, modify people's risk assessment processes, which can affect their ability to make responsible decisions, according to Kalipeni et al. (2014). Alam and Sayitu (2011) identify dangerous sexual practices as drug abuse, injecting drugs, alcohol abuse, many sex partners, unprotected sex, premarital sex, bartering sex for money, cross-generational sexual connections, early sexual debut, extramarital relationships, and sex with strangers.

In the case of HIV/AIDS, it has long been recognized that modifying sexual behaviour is the only method to halt the disease's spread. In behaviour modification attempts, risk information should be conveyed to the target audience regularly, regularly, and aggressively (Hampt et al., 2014).

2.4.13 Factors influencing the risky sexual attitude

Much of the research on how people perceive and respond to risk in the context of HIV has focused on how they perceive and respond to threat (Zwane, 2012). According to Van Wyk and Tshivase (2015), sexual behaviour is not always governed by logical and conscious decisions, thus it's not surprising that teaching people about the dangers of HIV/AIDS does not always persuade them to stop having unprotected sex. Risk perception is impacted to some extent by the social and cultural surroundings and is not purely an individual view.

Cultural, economic, and psychological factors all influence young people's decision to engage in risky sexual conduct.

2.4.13.1 Cultural factors

Social position, gender inequality, and norms are all cultural variables. Cultural behaviours play a significant impact in raising women's susceptibility to illness. Women in most African societies have little influence over their life (Asante, 2013). Men are thought to have a higher social position than women. This is due to the misconception that women have little authority over men. Booth (2014) discovered inequities governing power relations in a study of women and HIV/AIDS vulnerability in Kenya, with men yielding greater authority. As a result, women were unable to negotiate safe sexual practices. According to Zungu-Dirwayi et al. (2014), women are generally seen as good and virtuous, and hence socially acceptable, if they show no knowledge of sex and keep their virginity until marriage, or while acting as a passive sexual partner. Women find it difficult to be proactive in negotiating safe sex because of this. While the virginity tradition is supposed to protect girls, it also causes them to be afraid of asking questions about sex for fear of being labelled as sexually active.

In certain African civilizations, such as Swaziland, having several or extra-marital relationships is considered natural and prestigious (Jackson, 2016; Mfutso-Bengo & Muula, 2013). This practice is acceptable in Swazi society. According to IRIN (2012), women are legal minors in Swaziland. This can be seen from practices that restrict women from owning land; a male relative is required to secure a piece of land (Nomcebo, 2015). Men were found to be at greater risk due to their sexual practices (Simbayi et al, 2014) and Peltzer (2013), found that 50% of males and 20% of women indicated having more than one partner in the preceding 12 months. Older males were a significant predictor for HIV while young, singles and males were associated with more condom use in Peltzer's study (2013). According to

UNAIDS (2014), one of the explanations for the epidemic being so extensive in South Africa is the low status of women and sexual violence.

Girls have been indoctrinated to be quiet by cultural conventions and traditional customs, which can be employed as a coping method to avoid "rocking the boat," but can have negative consequences for women (Zwane, 2012). Women are not always safe in their own homes. Women in Swazi society are expected to be subordinate to their husbands and to be subservient to them. This allows men to have many partners and practice polygamy in the country lawfully (Nomcebo, 2015). Due to a lack of power, women are unable to refuse their husbands' requests for sexual intercourse or negotiate the use of condoms (Kalipeni et al., 2014; Jackson, 2016). This indicates that a woman's male partner's sexual conduct is the most important HIV risk factor for the vast majority of women (Booth, 2014). Given that unprotected sexual contact is the most common way for HIV/AIDS to spread (UNAIDS/ WHO, 2012), and that women use silence to secure and sustain intimate relationships (Neely-Smith & Patsdaughter, 2014).

In a country like Swaziland, where cultural norms and traditional practices have taught women to be passive during sexual interactions because they are unable or unwilling to negotiate condom use, more women are likely at risk of contracting HIV (Nomcebo, 2015). Peltzer's study (2013) found that most males did not inform their partners about their STI status, did not cease having sex while experiencing symptoms, and did not use condoms when experiencing symptoms. Only men have rights to and have the upper hand on sexual resolves in southern African cultures; women are not expected to negotiate for sex issues (Nomcebo, 2015).

2.4.13.2 Socio-economic factors

People are enslaved by social expectations of gender roles and conduct, even though stereotypes favour males significantly more than girls (Booth, 2014). Inequality in income, gender, and race are key factors in the social environment and surroundings that influence the risk of HIV infection (Ruiz et al., 2011). These can have an individual or systemic impact, such as when men and women's opinions of their abilities to negotiate safe sex practices in a partnership are influenced by economic inequality.

Because other problems such as food, housing and employment may be more pressing, socioeconomic inequalities create conditions that make it difficult for individuals to even recognize the HIV epidemic. Women in certain civilizations carry the bulk of the responsibility of providing for their families (Zwane, 2012). Women who are trying to have a roof over their heads, food on the table, and clothes on their children's backs are understandably dismissive of the possibility of HIV (Trotman, 2010).

Poverty tends to impact women in such a way that they have little or no control over sexual intercourse decisions, and they often find it difficult to disclose their seropositive status for fear of social ostracism and financial loss (Kalipeni et al., 2014). Even though HIV appears to be immune to societal barriers, poverty appears to aid in the spread of the disease and intensify its symptoms (Kelly, 2010). In locations where poverty is widespread, Kelly adds, immediate short-term survival takes precedence over long-term benefits. Le Marcis & Ibrahim-Vally (2015) best describe this scenario by stating that girls are given soap, clothing, and money. When this happens, the most important thing is to be one of the women receiving support, not the lone woman for the male.

Women are exposed to abuse and/or violence in this context where the relationship is hidden, and this non-existent bond gives them less weight. They define the status of women in such

relationships as that of a silent person, with the result that the perpetrator of violence cannot be condemned even in times of crisis, because any awareness of the connection exists only as a rumour. Meanwhile, the relationship provides material security for the women involved, despite its secrecy. Women who rely on their boyfriends for assistance are more vulnerable to infection since they are at a disadvantage because they are unable to negotiate for safe sex. HR et al. (2015). The risk of falling ill in years to come seems remote, compared with surmounting the problems of the present. More directly lack of or inadequate income may be responsible for some women's engagement in risky sexual behaviours.

Disparities in the age of spouse often encourage compliance and passivity in women (Kalipeni et al., 2014; Jackson, 2016, 93). Palmiere and Grant (2011) alluded that men were turning to schoolgirls who are naïve and they believe are unlikely to have contracted the virus. A young girl may be made to believe that she will not get HIV during the first sexual encounter. Most girls in cross-generational relationships do so because of economic support from the older partners and thus have less power to resist pressure to agree to unsafe sex (UNAIDS, 2014). For these girls, abstinence is out of the question because their partners, being older, feel more of a sense of entitlement to sex because more people their age are sexually active (Pinquart et al., 2014). These older partners shower girls with gifts, which enhance their self-esteem and their status among their peers. Risky sexual behaviours occur more often for girls with older partners than for girls with same-age partners.

People who abuse drugs or alcohol find it difficult to control what they do when they are under the influence of the substance. Alcohol and drugs lower inhibitions and puts people in situations where they have limited control over their decision-making and their partner's behaviour (Gowen et al., 2014; Kalipeni et al., 2014).

Perceived norms significantly affect the willingness of an individual to initiate and continue health-positive behaviours (Nombeco, 2015). Social norms are difficult to change, but sexuality education can have an impact. This can be possible through peer influence, public media campaigns and peer theatre. Perceptions of social norms are as influential on behaviour as actual norms, for instance, one study revealed that teens who perceived that their peers were using condoms were five times more likely to do so themselves (Nombeco, 2015). It is therefore imperative that communities, parents, and schools should coordinate efforts to introduce and support health-positive norms. Educators should use learning activities to help learners align perceived norms with reality.

2.4.14 Influence of knowledge, attitudes and risky behaviours on each other

The KAP model has best explained the triad relationship between knowledge, attitudes and behaviour. Some factors have been found to influence more than one of these variables. Such factors will be discussed below; which include self-efficacy, self-esteem, and misconceptions.

2.4.14.1 Self-efficacy

Self-efficacy is defined as "people's assessments of their abilities to plan and execute courses of action necessary for obtaining certain types of performance" (Bandura, 2014). Self-efficacy beliefs are the bedrock of human motivation and performance. This is because individuals are less likely to act or persevere in the face of hardship unless they feel their activities will result in the desired outcomes. Many factors impact human functioning, such as success or failure, which people face when they do a variety of jobs that risk their lives. Knowledge and component skills impact how individuals behave, according to Semple et al. (2019), in conjunction with Bandura's (2014) SCT. Several health-promoting and health-risk behaviours are predicted by self-efficacy. In the case of HIV/AIDS, an individual assesses his or her competence to engage in safe sexual behaviour based on the personal abilities at hand.

People's degree of motivation, emotional state, and behaviours are determined by what they think rather than what is objectively true, according to Bandura's (2014) fundamental contentions on the role of SCT human functioning. As a result, how people behave may be predicted more accurately by their views about their skills than by what they are capable of. Self-efficacy is a factor in determining what people accomplish with the information and abilities they possess (Pajares, 2012). This helps to explain why people's behaviour varies so much even when they have similar information and skills, or why their actions aren't always in line with their ability. This explains why people's conduct varies so much even when they have similar knowledge and skills, or why their behaviours are sometimes unrelated to their abilities. People create and develop self-efficacy as a result of the persuasions they receive from others, the practice of skills such as assertiveness and effective communication, condom use and negotiation for safer sex, exposure to positive role models and social norms, and learning constructive ways to relieve states of anxiety or desire, according to Pajares (2012) and Hedgepeth and Helmich (1996).

2.4.14.2 Self-esteem

Self-esteem is defined as a sense of self-worth, respect, and acceptance (Cast & Burke, 2012), as well as an overall assessment of one's worth, value, or relevance (Epstein et al., 2014). People with higher self-esteem are thought to have a lower risk of HIV/AIDS because their sense of self-worth prevents them from engaging in high-risk behaviours. The findings on the association between self-esteem and HIV/AIDS risks, on the other hand, have been mixed. Hylton (1999) discovered that 83% of seropositive women reported high self-esteem, but that self-esteem had no bearing on safer sex behaviours. Women with high self-esteem are more likely than women with low self-esteem to speak their thoughts in intimate relationships, according to Neely-Smith and Patsdaughter (2014). It's worth noting that findings from teen studies have shown either no association or a positive relationship. The overwhelming body

of data demonstrates that poor self-esteem is linked to high-risk behaviour (Long-Middleton, 2011). According to Neely-Smith and Patsdaughter (2014), education programs should focus on skill development to boost self-esteem and improve sexual communication, to boost sexual negotiation powers and lowering HIV/AIDS risk. An assessment of the effectiveness of programs on young people's sexual risk-taking behaviour found that educational programs improved participants' skills and boosted their confidence in their abilities (Kirby et al., 2015). It is necessary to be forceful to boost one's self-esteem. Assertiveness is a skill that can assist a person have more control over what is going on in their lives, leading to increased self-esteem. Assertiveness includes being able to ask for what one wants or needs, including being able to speak out one's feelings whether positive or negative and saying no to what one does not want. Self-esteem can therefore enable one to disclose his/her serostatus or even request a partner to disclose his/her serostatus and can motivate educators to feel competent in giving HIV preventive education.

2.4.15 Misconceptions to susceptibility

The stage of young adulthood is also marked by the denial of susceptibility to health consequences, the so-called 'personal fable' (Arnett, 2012), whereby young people view themselves as being unique. They tend to believe that it is a misfortune that befalls others and not them. Because of this belief individuals often misperceive their risk of acquiring HIV and STIs, which tends to increase their risky behavioural practices. Denial of susceptibility to infection renders young people to be discouraged to seek information that will help them to make sound decisions.

According to Ruiz et al. (2011), misunderstandings are fuelled in part by the unknown nature of the exposure, the low chance of infection per contact, and the period between infection and clinical presentation of the disease. Individuals' perceptions of the chance of obtaining HIV are generally modest, even when they are concerned about obtaining HIV. Individuals who

do not perceive themselves to be members of high-risk groups believe they are at low risk and are more likely to participate in hazardous sexual behaviours (Ruiz et al., 2011). Simbayi (2012) discovered that HIV positive people who were unaware of their serostatus did not believe HIV could infect them. Another myth concerning HIV positive people is that those who appear healthy do not have the illness. Individuals may get overconfident when selecting relationships as a result of this. Those who participate in high-risk behaviours may decide to cease and argue that they are not at danger for HIV infection (Ruiz et al., 2011). Individuals in committed relationships are more likely to forgo protection, perhaps because they are no longer susceptible. Parents in the sub-Saharan region are faced with the problem of perceiving that they are unable to control the behaviour of their youth, hence the high prevalence of HIV amongst the youth. Parents still view disclosing the positive HIV status of family members as announcing their promiscuity to the world.

2.4.15.1 Religiosity

While religious habits may be prescribed by the family at home, college students may have greater possibilities to investigate diverse religions and beliefs. Because ideas about sexuality grow and solidify during young adulthood (Arnett, 2011), religiosity is crucial for both sexual behaviour and attitudes. Religion and sexuality are intertwined in the sense that religion can impact a variety of sex-related decisions, such as abstinence, birth control, and abortion (Lefkowitz et al., 2014). Individuals who are not currently sexually active may develop views regarding sex, HIV, and condoms during emerging adulthood, according to Toon and Semin (1999), which may influence their future sexual and contraceptive behaviour. Religion is crucial for young adults, according to Arnett (2011), because they are in the process of discovering new worldviews.

According to the reference group theory, identifying with a specific religion causes people to avoid dangerous sexual behaviours because of their faith's precepts (Zaleski & Schiaffino,

2010). A high percentage of religiosity among African American teens was cited as one of the reasons for their low rates of alcohol and drug usage (Arnett, 2011). Religiosity has been linked to better teenage outcomes. Premarital sex is forbidden in many religious teachings. Despite the overwhelming evidence in favour of sex education, some religious groups oppose condom use. These emphasize abstinence while slamming condom use, alleging it to be unethical and wicked. These spiritual communities overlook the idea that religiosity is a personal choice, not a group or a partner's obligation. According to Jackson (2016), most people will publicly embrace their religion's strong moral rules while privately behaving in ways that contradict them.

The most widely practised religion in Swaziland is Christianity, which exclusively allows sex within a monogamous marriage. Most African traditional religions embrace polygamy; nonetheless, taboos against sex outside of marriage vary greatly amongst males and females, as well as in specific contexts (Jackson, 2016). Religious traditions have been discovered to play a significant role in Senegal's HIV/AIDS success (Kalipeni et al., 2004). In Islam, polygamy is the norm, yet promiscuity is severely punished to foster solid poly-partner fidelity. UNAIDS (1999) reported that 99% of married women said they have not had sex with anyone except their husband in the preceding 12 months. While Christianity promotes monogamy, the message of grace and forgiveness appears to have been misconstrued for a license for promiscuity.

CHAPTER 3

METHODOLOGY

3.1 Study area and design

This research was a cross-sectional and quantitative study conducted at the UDS Nyankpala Campus in the Northern region, Ghana between June and July 2021. The campus is located in the Tolon district in Northern Region, about 20 kilometres northwest of Tamale, the regional capital. Nyankpala is situated at latitude 9'23 N and longitude 058' W (Abaane et al., 2020). The university was established in 1993 to provide higher education to both undergraduates and graduates, and has a student-staff population of about 19,720. The University operates a multi-campus system in Nyankpala and Tamale, with 6 Schools, 6 Faculties, a directorate and a graduate school.

The study was only conducted on Nyankpala Campus which consists of the Faculty of Agriculture, Food and Consumer Sciences, Faculty of Communication and Cultural Studies, Faculty of Biosciences, Faculty of Natural Resources and Environment, School of Applied Economics and Management Sciences and School of Engineering. It is of the expectation that students offering health-related programs would have more knowledge on HIV/AIDS sexual risk behaviours and have better attitudes and behaviours concerning HIV/AIDS. This campus was purposely selected for the research because it does not offer any health-related programs and therefore, the results from the study can be used to make inferences to the entire Tamale populace.

3.2 Study population and sampling

The UDS Nyankpala Campus has a student population of about 1384 undergraduates as of the 2020/2021 academic year. Yamane’s formula (Israel, 2003) was used to calculate the

sample size for this study. Other assumptions considered during the sample size calculation were a 5% marginal error (d), and a confidence interval of 95%.

$n= N/ [1+N (e^2)]$

Where;

n= represents the sample size

N= the total number of undergraduate students on UDS Nyankpala Campus (1384 students).

e= margin of error at 95% with confidence interval = 0.05 or 5%

$n= 1384/1+ 1384 (0.05^2)$

n= **310**

Based on this formula calculation, the sample size was set at 310 students for this study.

A systematic sampling method was employed for the study and the inclusion criteria involved only students from Level 100 to 400 currently enrolled at the UDS Nyankpala campus. Initially, the names of all the students from Level 100 to Level 400 were collected from their respective course representatives and randomly selected to participate in the study. The proportion of students selected at each level was dependent on their class size.

3.3 Data collection techniques and tools

A specifically designed semi-structured questionnaire adapted from the HIV-Knowledge Questionnaire (Carey & Schroder, 2002; Ugarte et al., 2013), and the already tested HIV/AIDS Attitude Scale used to conduct college-based HIV/AIDS knowledge, attitudes and behaviour surveys were modified to suit this study and then distributed to the students. The students were given 15 minutes to answer the questionnaires which were divided into three parts. Part one was based on personal data (excluding names) and demographic

characteristics; part two on knowledge about HIV/AIDS, which focusses primarily on various modes of transmission, high-risk behaviours and preventive methods relating to sexual activity. The third part assessed their attitudes towards HIV testing.

3.3.1 Knowledge

HIV-related information important for recognizing sexual risk behavior, making informed decisions, and change of behavior was characterized as the knowledge domain. Additionally, the test included sections that assessed beliefs about the risk of close contact with HIV-positive people who were suspected or known to be infected. Based on the above statements, 18 questions were adapted from the HIV Knowledge Questionnaire- 18 by Carey & Schroder (2002). HIV knowledge level was assessed using an 18-point scale based on two major domains: (a) type of HIV transmission (6 items) and (b) HIV transmission misconceptions (6 items) (12 items) (Ugarte et al., 2013). The items were graded on a True/False/I don't know basis. For the knowledge score (KNS), each accurate response received a "1," whereas an erroneous response or an "I don't know" response received a "0". After that, the HIV knowledge level was then classified into two KNS groups with 1 indicating "adequate knowledge" when the participants scored 16 or more correctly, and 0 indicating "inadequate knowledge" when they answered 15 or less questions correctly. Ugarte et al. (2012) recommended the cut-off point.

3.3.2 Behaviour

Sexual risk behaviours were assessed by a total of 19 questions out of which 9 of the items was answered with a "Yes or No" response. 6 of the items were multiple-choice questions, one open-ended question and the last 3 questions were assessed by a 5- point response. Information on sexual behaviours of participants over the past 1 year and their sexual experiences with their last partner was asked. The age at which the first sexual intercourse occurred, the number of sexual partners, the frequency of sex, condom use, and drug use

before and during sex were all investigated (Statistical Institute of Belize, 2014). Condom use was measured using a single question with a 5-point response scale ranging from "never" to "always." Any answer to this question other than “always” was classified as inconsistent use of a condom. Not using a condom with each act of vaginal, oral, or anal sex was defined as inconsistent use. There was also a need for more information about personal interaction with sex workers and HIV testing.

3.3.3 Attitude towards HIV testing

Attitudes of the students regarding HIV testing were assessed by 8 questions adapted from Milic et al. (2020). Participants in the study were asked if they had ever tested for HIV (possible answer options: yes or no), including the possible reasons for not having done so (possible answer options: no, out of fear; no; no need for testing; ignorance). Students were asked if there are testing sites in Tamale, and whether they would be interested in testing for HIV. For those that ever tested for HIV, students were also asked if they had tested in the last 6 months. The responses to the question were categorized as either a positive or negative attitude towards testing (including having no idea about the possibility for testing and/or having no interest in testing for HIV). Students were then asked if they had ever had an interaction with an HIV-positive person and to rate their own risk of contracting the virus (characterized as very low, low, do not know, high or very high). Lastly, students were asked what they would do after discovering that a person they knew was HIV-positive (it was categorized as: reduce the contact or keep the same level of contact, stop the contact, not sure how to react and communicate) (Milic et al., 2020).

3.4 Operational definition

- Sexual intercourse/encounter/experience: Involves penile-vaginal sexual intercourse in every sexual intercourse.
- Unprotected sex: Sexual intercourse without the use of condoms.

- Protected sex: Using a condom during every sexual intercourse.

3.5 Data Analysis

The SPSS for Windows, Version 26 was used in analyzing the data and $p< 0.05$was used as the statistical significance level. The Kolmogorov–Smirnov normality test was used for assessing the sample data distribution. The study population was described using the measures of central tendency (mean), and standard deviation and presented in a form of tables and diagrams. The HIV knowledge score of each item on the knowledge questionnaire was also calculated and presented in a form of a table. A one-way Analysis of Variance (ANOVA) and an independent sample T-test was conducted to explore group differences of sociodemographic factors being studied based on the knowledge score. To determine sociodemographic factors associated with a greater KNS (categorized as categorical, i.e. inadequate vs adequate level), linear regression modelling was used by entering the factors into a general model. A chi-square analysis was also performed to test the association of sexual risk behaviours and attitudes towards HIV testing with KNS. Categorical data were presented as frequencies and percentages.

3.6 Ethical Consideration

Permission and approval were sought from the Committee on Human Research, Publications & Ethics (CHRPE). Informed consent in the form of writing was also obtained from each participant after information about the study was read and clarified to them before answering the questionnaires. Participants were assured that the information collected would remain anonymous and confidential. Also, they were not subjected to harm in any way whatsoever, and respect for their dignity was prioritised.

CHAPTER FOUR

RESULTS

4.1 Introduction

This chapter presents results obtained from participants in the field during the data collection processes, using several methods and an appropriately selected tool such as questionnaires. This is structured in connection with the research objectives. The main themes of the analysis include the background of respondents and the concepts of the study. 310 questionnaires were distributed to the students however; only 302 questionnaires were used for the analysis. The other 8 questionnaires that were returned by the students were either half-filled or empty.

4.2 Socio-Demographic Characteristics of Respondents

4.2.1 Age Distribution of Respondents

Generally, age can be perceived as a variable on the level of knowledge that individuals have concerning HIV risk behaviours. Age distributions of respondents were classified into three main groups thus; 15-19 years, 20-24 years and above 25 years. It was possible to compare the level of knowledge of sexual risk behaviours, sexual risk behaviours and attitudes towards HIV testing of respondents across different age groups by the classification shown in Fig. 4.1 below. Out of the 302 respondents, 66.5% (201) of them were from 20 to 24 years old and 23.2% (70) were 25 years old or over. Only 10.3% (31) students were from 15 to 19 years old.

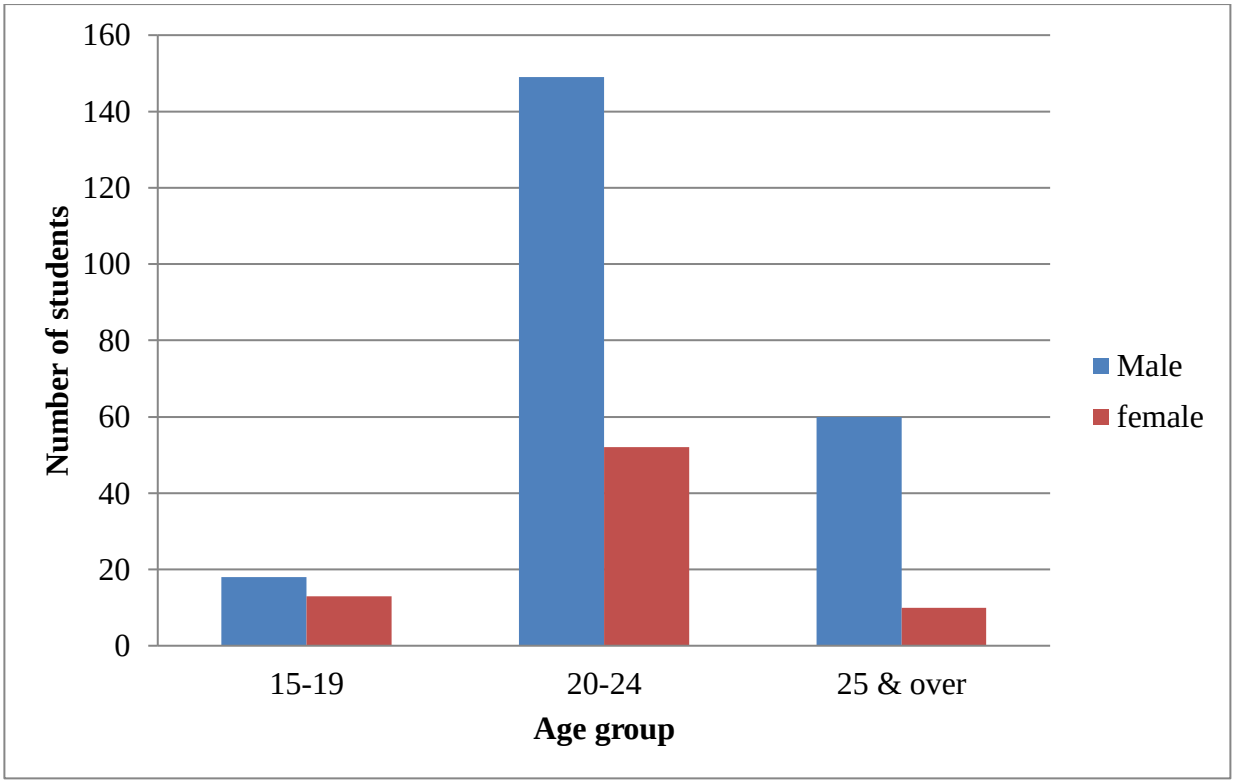

Figure 4.1 Age distribution of respondents

Source: Field survey data, 2021

4.2.2 Socio-Demographic Characteristics of Respondents (Continuation)

Table 4.1 illustrates a distribution of other socio-demographic characteristics such as the level or year of respondents at the university, their residence while in school, the religion they belong to, marital status and monthly allowance or salary. There is a need to understand the distribution of these factors among respondents to identify the impact it has on the level of HIV knowledge of sexual risk behaviours.

From the study it was revealed that 281 representing 93.0% of the respondents were single and 21 representing 7.0% were single. Out of the single participants, 208 representing 68.8% were males and 73 representing 24.2% were females. Also, only 6.3% of the males and 0.7% of the females were married. Most of the students reside in a private hostel (70.8%) and only 22.2% of them live in the school hostels. The most dominant Religion of respondents was

Christianity (60.6%), followed by Islam (34.8%). However, 1.0% of the respondents were traditionalists.

About 39.1% of the participants stated that they receive a monthly allowance of less than GH₵100.00 from home, while 23.2% receive between GH₵100.00 and GH₵200.00. Only 7.6% of the entire of the respondents receive over GH₵500.00 monthly.

Table 4.1 Socio-demographic characteristics of respondents

	Gender		
Demographic characteristics	**Male**	**Female**	**Total (%)**
Level at university			
100	58a	13a	71 (23.5%)
200	55a	18a	73 (24.2%)
300	66a	19a	85 (28.1%)
400	48a	25b	73 (24.2%)
Residence			
School hostel	51a	16a	67 (22.2%)
Private hostel	156a	58a	214 (70.8%)
Live with family	20a	1b	21 (7.0%)
Religion			
Christian	132a	51a	183 (60.6%)
Muslim	92a	24a	116 (38.4%)
Other	3a	0a	3 (1%)
Marital status			
Single	208a	73a	281 (93.0%)
Married	19a	2a	21 (7.0%)

Table 4.1(b) continued.

Demographic characteristics	Gender		Total (%)
	Male	Female	
Monthly allowance (GH₵)			
Less than 100gh	92a	26a	118 (39.1%)
From 100gh to 200gh	55a	15a	70 (23.2%)
From 201gh to 300gh	40a	26b	66 (21.8%)
From 301gh to 400gh	6a	3a	9 (3.0%)
From 401gh to 500gh	14a	2a	16 (5.3%)
Above 500gh	20a	3a	23 (7.6%)

Source: Field survey data, 2021

Each subscript letter denotes a subset of gender categories whose column proportions do not differ significantly from each other at the 0.05 level.

4.2.3 Descriptive Statistics for Individual HIV Knowledge Items

From the descriptive analysis, there was an average of 58% correct on the HIV-KQ-18 out of which only 21 students (7%) of the total study sample had an adequate HIV knowledge of sexual risk behaviours with an average knowledge score of 10.36 ± 3.0 (mean ± *SD*), while the other 281 students (93%) had an inadequate HIV knowledge with a mean score of 16.33 ± 0.5 (*p*- value < 0.001). The overall average mean of the student's HIV knowledge scores was 10.77 ± 3.31 with the lowest score being 1 out of 18, and the highest being 17 out of 18.

Table 4.2 contains the means and standard deviations for the HIV Knowledge Questionnaire (HIV-KQ-18) and the number of students that scored each item correctly. For the top quartile of items with correct responses, 280 (93%) of the students correctly answered True when they were asked, "Having sex with more than one partner can increase a person's chance of being infected with HIV"; 111 (37%) correctly answered False to the statement, "Taking a test for HIV one week after having sex will tell a person if she or he has HIV"; and 236

(78%) correctly answered False to the statement, “A person cannot contract HIV from having sex only once without a condom”. For the items in the bottom quartile, 178 (59%) students correctly answered False to the statement, “A person will NOT get HIV if he or she takes antibiotics”; 209 (69%) correctly answered False to the statement, “People who have been infected with HIV quickly show serious signs of being infected”; and 208 (68%) students correctly answered False to the statement, “All pregnant women infected with HIV will have babies born with HIV”. Only 57 (19%) students correctly answered False to the statement, “People are likely to get HIV by deep kissing, putting their tongue in their partner’s mouth, if their partner has HIV”.

Table 4.2 Individual item means and standard deviations for the Brief HIV Knowledge Questionnaire (HIV-KQ-18) among Nyankpala UDS students

	Number of Correct answers	*n*	*SD*
(1) Having sex with more than one partner can increase a person's chance of being infected with HIV. (T)	280	0.93	0.26
(2) Taking a test for HIV one week after having sex will tell a person if she or he has HIV. (F)	111	0.33	0.47
(3) A person cannot contract HIV from having sex only once without a condom. (F)	236	0.75	0.44
(4) A person can get HIV from oral sex. (T)	156	0.52	0.50
(5) Using Vaseline or baby oil with condoms lowers the chance of getting HIV. (F)	105	0.35	0.48
(6) A natural skin condom works better against HIV than does a latex condom. (F)	126	0.42	0.49
(7) There is a female condom that can help decrease a woman's chance of getting HIV. (T)	221	0.73	0.44
(8) A woman cannot get HIV if she has sex during her period. (F)	202	0.67	0.47
(9) People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV. (F)	57	0.19	0.39
(10) Showering, or washing one's genitals/private parts, after sex keeps a person from getting HIV. (F)	218	0.72	0.45
(11) A woman can get HIV if she has anal sex with a man. (T)	132	0.44	0.49
(12) Coughing and sneezing DO NOT spread HIV. (T)	202	0.67	0.47
(13) A person can get HIV from sharing a glass of water with someone who has HIV. (F)	193	0.64	0.48
(14) There is a vaccine that can stop adults from getting HIV. (F)	152	0.50	0.50
(15) A person can get HIV by sitting in a hot tub or a swimming pool with someone who has HIV. (F)	186	0.62	0.49
(16) A person will NOT get HIV if he or she takes antibiotics. (F)	178	0.59	0.49
(17) People who have been infected with HIV quickly show serious signs of being infected. (F)	209	0.69	0.46
(18) All pregnant women infected with HIV will have babies born with HIV. (F)	208	0.69	0.46

Source: Field survey data, 2021

4.3 Effects of Socio-demographic Factors on Level of HIV Knowledge of Sexual Risk Behaviours

The sub-groups of the socio-demographic factors of respondents were compared using their level of HIV knowledge of sexual risk behaviours to explore group differences.

4.3.1 Effect of Religion on Level of HIV Knowledge of Sexual Risk Behaviours

A one-way ANOVA was conducted to explore group differences of religion based on the knowledge score, of which the type of religion was completed as the independent variable, and the score for level of HIV knowledge of sexual risk behaviours completed as the dependent variable. An alpha level of 0.05 was utilised. Descriptive statistics are displayed in Table 4.3. Results of the ANOVA showed a significant difference between religion (Christian, Muslim, and other) on level of HIV knowledge; $F(2, 299) = 3.77$, $p = 0.024$, $d = 0.024$. Therefore, the null hypothesis that there is no difference in the levels of HIV knowledge of sexual risk behaviours between the religions of respondents would be rejected.

However, Scheffe post-hoc analysis revealed Christians ($n = 183$, $M = 11.09$, $SD = 3.313$) have insignificantly higher levels of HIV knowledge of sexual risk behaviours than the Muslims ($n = 116$, $M = 10.36$, $SD = 3.180$) and those that belong to other religions ($n = 3$, $M = 7.00$, $SD = 5.292$). The Muslims and those belonging to other religions are also not significantly different from each other.

Table 4.3 Effect of Religion on Level of HIV Knowledge of Sexual Risk Behaviours

Religion	*n*	Mean	SD
Christian	183	11.09	3.313
Muslim	116	10.36	3.180
Other	3	7.00	5.292

Source: Field survey data, 2021

4.3.2 Effect of Age on Level of HIV Knowledge of Sexual Risk Behaviours

After conducting a normality test and Levene's test of equality of error variances which all proved to be statistically insignificant for the groups involved, a one-way ANOVA was used to explore the age group differences based on their level of knowledge score, of which the age group was completed as the independent variable and the score for level of HIV knowledge completed as the dependent variable. An alpha level of 0.05 was utilised and the descriptive statistics are displayed in Table 4.4. Results of the ANOVA showed a significant difference between the age group on the level of HIV knowledge; $F(2, 299) = 5.30$, $p = 0.006$. Therefore, the null hypothesis that there is no difference in the level of HIV knowledge between the ages of respondents would be rejected.

Scheffe post-hoc analysis revealed that respondents aged 25 years and over ($n = 70$, $M = 10.77$, $SD = 3.310$) have significantly higher levels of HIV knowledge than those from 20 to 24 years ($n = 201$, $M = 10.61$, $SD = 3.414$) and from 15 to 19 years ($n = 31$, $M = 9.61$, $SD = 3.273$). Age groups from 15 to 19 years old and those from 20 to 24 years old are not significantly different from each other.

Table 4.4 Effect of Age on Level of HIV Knowledge of Sexual Risk Behaviours

Age group	*n*	Mean	SD
15-19	31	9.61	3.273
20-24	201	10.61	3.414
25 & over	70	10.77	3.310

Source: Field survey data, 2021

4.3.3 Effect of College level/Year on Level of HIV Knowledge of Sexual Risk Behaviours

After checking for normality and the homoscedasticity of error variances, a one way ANOVA was conducted to explore the college level differences based on their level of knowledge

score, of which the college level was completed as the independent variable, and the score for level of HIV knowledge completed as the dependent variable. An alpha level of 0.05 was utilised and the descriptive statistics are displayed in Table 4.5. Results of the ANOVA showed a significant difference between college level on the level of HIV knowledge; $F(3, 298) = 3.19$, $p = 0.024$. The null hypothesis that there is no difference in the levels of HIV knowledge of sexual risk behaviours between the college levels/years of respondents would be rejected.

Scheffe post-hoc analysis revealed that respondents in Level 300 ($n = 85$, $M = 11.53$, $SD = 3.459$) have significantly higher levels of HIV knowledge than those in Level 100 ($n = 71$, $M = 9.92$, $SD = 3.083$). However, those in Level 100, Level 200 ($n = 73$, $M = 10.85$, $SD = 3.340$) and Level 400 ($n = 70$, $M = 10.77$, $SD = 3.310$) are not statistically significant from each other. Also, respondents in Level 200, Level 300 and Level 400 are not statistically significant from each other.

Table 4.5 Effect of College level/Year on Level of HIV Knowledge of Sexual Risk Behaviours

College level	*n*	Mean	SD
100	71	9.92	3.083
200	73	10.85	3.340
300	85	11.53	3.459
400	73	10.64	3.164

Source: Field survey data, 2021

4.3.4 Effect of Gender on Level of HIV Knowledge of Sexual Risk Behaviours

An independent sample t-test was run to see if there was an impact from the gender of respondents on their level of HIV knowledge, using gender as the independent variable and the HIV knowledge score as the dependent variable. The assumption of homogeneity of

variances was tested and satisfied via Levene's $F(300) = 0.93$, $p = 0.335$. On Table 4.6, the results from the male group ($n = 227$, $M = 10.86$, $SD = 3.361$) and the female group ($n = 75$, $M = 10.49$, $SD = 3.155$) have no statistically significant difference between the two groups $t(300) = 0.84$, $p = 0.402$. The null hypothesis which states that there is no difference in the level of HIV knowledge of sexual risk behaviours between the genders of respondents would be accepted.

Table 4.6 Effect of Gender on Level of HIV Knowledge of Sexual Risk Behaviours

	Gender	*N*	Mean	SD
Knowledge score	Male	227	10.86	3.361
	Female	75	10.49	3.155

Source: Field survey data, 2021

4.3.5 Effect of Relationship Status on Level of HIV Knowledge of Sexual Risk Behaviours

A Levene's F test was initially conducted to ensure that the assumption of homogeneity of variances was not violated. Since the assumption was satisfied; $F(300) = 0.42$, $p = 0.516$, an independent t-test was run to see if there was an impact from the relationship status of respondents on their level of HIV knowledge, using relationship status as the independent variable and the HIV knowledge score as the dependent variable. Results in Table 4.7 from respondents who are single ($n = 281$, $M = 10.70$, $SD = 3.323$) and those that are married ($n = 21$, $M = 11.67$, $SD = 3.055$) have no statistically significant difference between the two groups $t(300) = -1.29$, $p = 0.199$. The null hypothesis that there is no difference in the level of HIV knowledge between the relationship statuses of respondents would be accepted.

Table 4.7 Effect of Relationship Status on Level of HIV Knowledge of Sexual Risk Behaviours

	Relationship status	*n*	Mean	SD
Knowledge score	Single	281	10.70	3.323
	Married	21	11.67	3.055

Source: Field survey data, June, 2021

4.3.6 Effect of Monthly Allowance/Income on Level of HIV Knowledge of Sexual Risk Behaviours

After checking for normality and the homoscedasticity of error variances, a one way ANOVA was conducted to explore the monthly allowance/income differences based on their level of knowledge score, of which the monthly allowance was completed as the independent variable and the score for level of HIV knowledge of sexual risk behaviours completed as the dependent variable. An alpha level of 0.05 was utilised and the descriptive statistics are displayed in Table 4.8. Results of the ANOVA showed a significant difference between monthly allowance on the level of HIV knowledge of sexual risk behaviours; $F(5, 296) = 3.73$, $p = 0.003$. The null hypothesis that there is no difference in the levels of HIV knowledge of sexual risk behaviours between the monthly allowances of respondents would be rejected.

However, scheffe post-hoc analysis revealed no statistical significance among respondents with monthly allowance/income less than 100gh ($n = 118$, $M = 10.47$, $SD = 3.325$), between 100gh and 200gh ($n = 70$, $M = 9.77$, $SD = 3.280$), between 201gh and 300gh ($n = 66$, $M = 11.58$, $SD = 3.333$), between 301gh and 400gh ($n = 9$, $M = 10.78$, $SD = 2.863$), between 401gh and 500gh ($n = 16$, $M = 12.06$, $SD = 2.265$) and above 500gh ($n = 23$, $M = 12.17$, $SD = 3.025$) from each other.

Table 4.8 Effect of Monthly Allowance/Income on Level of HIV Knowledge of Sexual Risk Behaviours

Monthly Allowance (GH cedis)	*n*	Mean	SD
Less than 100gh	118	10.47	3.33
From 100gh to 200gh	70	9.77	3.28
From 201gh to 300gh	66	11.58	3.33
From 301gh to 400gh	9	10.78	2.86
From 401gh to 500gh	16	12.06	2.27
Above 500gh	23	12.17	3.03

Source: Field survey data, 2021

4.4 Linear logistic regression model of Socio-demographic Factors and HIV Knowledge Score

The 'Enter' method of a linear logistic regression was utilised to examine the association of the socio-demographic factors with a higher HIV knowledge score, and significant equations were achieved for the variable group (general: $R = 0.270$; adjusted $R^2 = 0.051$; $F = 3.295$; $p = 0.002$). From the linear regression model as illustrated in Table 4.9, none of the sociodemographic factors observed was associated with a higher knowledge score/group, i.e. adequate HIV-related knowledge.

Table 4.9 Linear logistic regression models of factors associated with higher knowledge score (continuous outcome) and knowledge score groups (categorical outcome)

Outcome (continuous knowledge score)	***B***	**Cl (lower)**	**Cl (higher)**	***ß***	***t***	***p*-value**
Constant	7.355	4.204	10.505	-	4.593	0.000
Gender	-0.304	-1.185	0.577	-0.040	-0.679	0.498
Age	0.140	-0.010	0.290	0.151	1.835	0.067
College/Level	0.035	-0.347	0.416	0.011	0.178	0 .859
Residence	0.330	-0.447	1.107	0.052	0.836	0.404
Religion	-0.944	-1.691	-0.198	-0.146	-2.490	0.013
Relationship	-0.880	-2.735	0.976	-0.68	-0.933	0.352
Monthly allowance or Income	0.281	0.013	0.549	0.129	2.066	0.040

B: unstandardized coefficient; *CI*: confidence interval; *OR*: odds ratio

Source: Field survey data, 2021

4.5 Sexual Risk Behaviours

Table 4.10 shows students' sources of information about HIV and their sexual risk behaviours and whether or not these parameters are associated with their HIV knowledge levels. 66.9% of the participants stated that they initially learned about HIV in school, followed by 20.5% of respondents who learned about it through the media such as television, radio and newspapers. 6.3%, 4.0% and 2.3% of the students also learned about it through the specialised HIV- related education programs, internet and medical sources/facilities respectively of which those whose source of HIV information was the internet had the highest average HIV knowledge score of 12.33 ± 3.34. However, the association between the sources of HIV knowledge and the student's HIV knowledge levels were insignificant (*p*-value = 0.598). The null hypothesis of no association would be accepted.

45% of students had boyfriends/ girlfriends while 55% of them did not. The null hypothesis that states that there is no association between either having a boyfriend/ girlfriend or not and their HIV knowledge levels would be rejected because there is no statistical significance (*p*-value= 0.334).

56.5% of the students stated that they were in a committed relationship and 15.7% were in a casual relationship. Also, 23.6% admitted they were both in a committed and casual relationship, while only 4.2% were not in any relationship at all. In addition to this, 51% of them stated that they have ever had sexual intercourse but only 44% were sexually active at the time in which this data was being collected. 27% of the male students admitted to having both sexually active committed partners and casual sexual relationships with other women, while only 19% of the female students had both sexually active committed partners and casual partners. Those that had ever had sex had a mean HIV knowledge score of 10.80 ± 3.19 while those that never had sex had an average score of 10.74 ± 3.44 (mean ± *SD*) with a

p- value of 0.885. The mean average age at which the students had their first sexual encounter was 19.46 ± 4.3 for the male students and 19.14 ± 3.3 for the female students. Based on the data collected, the youngest age at which some of the students had their first sexual intercourse was 5 years, while the oldest was 34 years.

Of the 154 participants that have ever engaged in sexual intercourse, 60.4% of them did not use a condom during their first encounter (*p*- value= 0.195) and this percentage increased to 61% of students who also did not use a condom during their last sexual encounter, of which 61% were males (out of 117 sexually active males) and 62% females (out of 37 sexually active females). The most reason chosen was that they do not like condoms (57.7%), while 36.1% of students said their sexual activity was a symbol of love and their commitment, followed by 6.2% of who said using a condom did not cross their minds during the activity (*p*- value= 0.360). In addition to this, 91 students (93.8%) out of the 97 that did not use a condom during their last sexual encounter all had inadequate HIV knowledge of sexual risk behaviours.

Over half of the students that have ever had a sexual encounter indicated that their last experience was with their boyfriends/ girlfriends (59.7%), while 29.2% said it was with their casual partners. Only 17 (11%) (Table 4.7) out of the 21 married students (Table 4.10a) indicated that their last experience was with their spouses.

When the students were asked how often they used a condom with their partners, 33.1% said they have never used a condom during sexual activity, and only 16.9% said they used a condom always (*p*- value= 0.581).

Only 9.9% and 2.0% of the study sample admitted that they sometimes drink alcohol and smoke or use drugs respectively. Furthermore, 12.3% of those that were sexually active

admitted to using or smoking substances (drugs) and drinking alcohol before or during their sexual relations (*p*- value= 0.356).

Out of the 154 students that had ever engaged in a sexual encounter, 64.3% had only one sexual partner or no sexual relations in the last 12 months. 33.8% engaged in sexual encounters with 2 to 5 different sexual partners, and 1.9% had 6 or more sexual partners in the last 12 months. 41% of the sexually active male students had 2 or more sexual partners while only 19% of female students had 2 or more sexual partners in the last year. However, the number of sexual partners had no association with the student's HIV knowledge level (*p*- value= 0.488). However, there was a significant difference when the mean HIV knowledge score for each category of several sexual partners was compared with each other (*p*- value= 0.042). Even though none of the categories had adequate knowledge of HIV on sexual risk behaviours, those that had only one or no sexual partner had the highest HIV knowledge score of 10.78 ± 3.1 (mean ± *SD*), while those that had six or more sexual partners had the lowest HIV knowledge score of 6.33 ± 2.9.

77.3% of the sexually active students said they were not aware of the HIV status of their last sexual partners (*p*- value= 0.696). Also, only 15.6% had ever been diagnosed with a sexually transmitted infection (*p*- value= 656). When asked if they had ever had sexual intercourse with a sex worker, 12 students (7.8%) out of the 154 that had ever had sexual relations said yes (*p*- value= 0.567).

Over half of the entire study sample (52%) believed that sexual abstinence was the best way of reducing the risk of sexual transmission of HIV, followed by those that believed that staying faithful with one's partner (28.8%) and always using a condom (19.2%) were the best options respectively (*p*- value= 0.685).

Unfortunately, all the parameters above did not influence the HIV knowledge score groups of the students since all their p- values showed no significance (p- value < 0.05). The null hypothesis of no association between each sexual risk behaviour and HIV knowledge levels would be accepted.

Table 4.10(a) Students' Sources of HIV Information and their Sexual Risk Behaviours

Characteristics	Total sample				Inadequate knowledge	Adequate knowledge
	n	%	X^2	*P*-value	*n*	*n*
Where did you first learn about HIV?						
Media (TV, radio, newspapers)	62	20.5	2.855	0.598	59	3
Internet	12	4.0			10	2
Medical sources/ facilities	7	2.3			7	0
School curriculum	202	66.9			187	15
Specialised HIV-related education programs	19	6.3			18	1
Do you have a boyfriend/ girlfriend?						
Yes	136	45.0	0.439	0.334	128	8
No	166	55.0			153	13
Ever had a sexual intercourse?						
Yes	154	51.0	0.103	0.823	144	10
No	148	49.0			137	11
Are you sexually active?						
Yes	133	44.0	0.117	0.732	123	10
No	169	56.0			158	11
Type of partner in last sexual encounter						
Spouse	17	11.0	1.368	0.498	15	2
Casual	45	29.2			42	3
Boy/Girlfriend	92	59.7			87	5

Table 4.10(b) continued.

Characteristics	Total sample				Inadequate knowledge	Adequate knowledge
	n	%	X^2	*P*-value	*n*	*n*
How often do you or your partner use a condom?						
Never	51	33.1	2.808	0.581	49	2
Rarely	19	12.3			17	2
Sometimes	42	27.3			40	2
Often	16	10.4			15	1
Always	26	16.9			23	3
Do you drink alcohol?						
Never	247	81.8	5.346	0.229	232	15
Rarely	21	7.0			17	4
Sometimes	30	9.9			28	2
Often	3	1.0			3	0
Always	1	0.3			1	0
Do you smoke or use substances (drugs)?						
Never	287	95.0	1.379	0.306	268	19
Rarely	8	2.6			7	1
Sometimes	6	2.0			5	1
Often	1	0.3			1	0
Always	-	-			-	-
Ever used alcohol or any substance (drug) before or during sexual relations						
Yes	19	12.3	0.581	0.356	17	2
No	135	87.7			127	8

Table 4.10(c) continued.

Characteristics	Total sample				Inadequate knowledge	Adequate knowledge
	n	%	X^2	*P*-value	*n*	*n*
Ever used alcohol or any substance (drug) before or during sexual relations						
Yes	19	12.3	0.581	0.356	17	2
No	135	87.7			127	8
Number of sexual partners in the last 12 months?						
0-1	99	64.3	1.483	0.488	55	6
2-5	52	33.8			50	2
≥6	3	1.9			3	0
Aware of last partner HIV status?						
Yes	35	22.7	0.322	0.696	32	3
No	119	77.3			112	7
Ever been diagnosed with an STI?						
Yes	24	15.6	0.158	0.656	22	2
No	130	84.4			122	8
Ever had a sexual intercourse with a sex worker?						
Yes	12	7.8	0.073	0.567	11	1
No	142	92.2			133	9

Table 4.10(d) continued.

Characteristics	Total sample				Inadequate knowledge	Adequate knowledge
	n	%	X^2	*P*-value	*n*	*n*
Best way of reducing the risk of sexual transmission of HIV						
Always use a condom	58	19.2	0.988	0.685	53	5
Staying faithful with your partner	87	28.8			80	7
Sexual abstinence	157	52.0			148	9

n: number of students, X^2: chi-square

Source: Field survey data, 2021

4.6 Students' Attitudes towards HIV Testing and People living with HIV

Table 4.11 shows the students' attitudes towards HIV testing and people living with HIV. The table also shows whether or not these parameters are associated with their HIV knowledge levels. When the participants were asked if they were interested in testing for HIV, only 67.9% of them agreed. For those that were interesting in testing for HIV, 193 of them had inadequate HIV knowledge while only 12 had adequate knowledge. Also, 88 students with inadequate knowledge about HIV expressed some interest in testing for the disease while 9 students with inadequate knowledge expressed no interest in testing. However, having an interest in testing for HIV or not did not influence the HIV knowledge score group of sexual risk behaviours (*p*- value= 0.275) and a chi-square (X^2) of 1.194 even though those that were interested had a relatively higher average knowledge score of 10.91 ± 3.2 (mean ± SD) compared to those that were not interested in testing for HIV (10.47 ± 3.5).

Therefore, the null hypothesis that there is no difference in HIV knowledge levels of sexual risk behaviours between those interested or not interested in testing for HIV would be accepted.

Only 20.9% of the participants admitted to having tested for HIV before while 79.1% never tested. More of the female students (27%) ever tested for HIV than the male students (19%). The number of students that ever tested for the virus however did not have any influence on their level of HIV knowledge of sexual risk behaviours (*p*- value= 0.267). The null hypothesis that there is no difference in HIV knowledge levels between those that had ever tested for HIV and those that had not would be accepted.

Out of the 239 participants that never tested for HIV, Figure 4.2 below depicts that 60.3% of them never tested because there was no need for it. 27.2% never tested out of ignorance, while 12.6% never tested out of fear of being infected. Unfortunately, the reasons for not testing for HIV did not influence the HIV knowledge levels of sexual risk behaviours as shown in Table 4.11a below (*p*- value= 0.537). Therefore, the null hypothesis that there is no association between HIV knowledge levels and the reasons for not testing for HIV would be accepted.

For those that ever tested for HIV, only 25.4% of students had tested in the last 6 months. The null hypothesis would be accepted because the HIV knowledge levels of students were not influenced by whether or not they tested for HIV in the last 6 months (*p*- value= 0.422).

As seen in figure 4.3 below, 68.2% of the participants said yes when asked if there were HIV testing sites in Tamale, 15.9% said no and another 15.9% admitted that they did not know. The results of this question did not influence the participant's HIV knowledge scores of sexual risk behaviours (*p*- value= 0.940) (Table 4.11a).

Only 27 (8.9%) out of the 302 participants admitted to having previous interaction with a person infected with HIV. 91.1% had no verified contact with anyone infected. Having either a previous interaction with a person infected or not did not influence the HIV knowledge levels of the students. The null hypothesis would therefore be accepted (*p*- value= 0.706).

When the participants were asked to categorise their risk of acquiring HIV, 54.3% of them indicated that they had very low chances of acquiring it, followed by 29.1% who said they did not know as illustrated in Figure 4.4. Only 2% categorised their risk of acquiring HIV as very high. 67% of male students perceived their risk of acquiring HIV to be low and very low, while 64% of female students had a similar perception towards their risk of acquiring the disease. Their perceived risk of acquiring HIV did not influence their HIV knowledge levels as shown in Table 4.11 so therefore, the null hypothesis would be accepted (*p*- value= 0.583). However, there was a significant difference in the mean HIV knowledge scores (*p*- value= 0.02) whereby those who said they had high chances of acquiring HIV had the highest knowledge score of 12.38 ± 2.1.

Lastly, when the students were asked what they would do if they found out someone they knew was HIV positive, 33.4% of students said they would keep the same contact, 32.5% said they were not sure how they would react and communicate, 27.8% said they would reduce their contact and 6.3% said they would stop all contact with them. Their interactions with HIV positive persons did not influence their HIV knowledge score groups of sexual risk behaviours (*p*- value= 0.345). Therefore, the null hypothesis which states the student's interactions with HIV positive persons has no influence on their HIV knowledge levels would be accepted. On the other hand, there was a significant difference in the mean HIV knowledge scores between the different interactions with HIV positive persons whereby those who said they would keep the same level of contact had the highest average HIV knowledge score of 11.55 ± 3.0 (*p*- value= 0.025). Those that said they were not sure of how

they would react and communicate had the lowest average HIV knowledge score of 10.17 ± 3.4.

Table 4.11(a) Students' Attitudes towards HIV Testing

	Total sample				Inadequate knowledge	Adequate knowledge
Characteristics	***n***	**%**	X^2	***p*-value**	***n***	***n***
Interested in testing for HIV?						
Yes	205	67.9	1.194	0.275	193	12
No	97	32.1			88	9
Ever tested for HIV?						
Yes	63	20.9	1.757	0.267	61	2
No	239	79.1			220	19
Reasons for not testing						
Due to fear	30	9.9	1.369	0.537	29	1
No need for testing	144	47.6			133	11
Due to ignorance	65	21.0			58	7
If you have ever tested for HIV, have you tested in the last 6 months						
Yes	16	25.4	0.644	0.422	16	0
No	47	74.6			43	4
Are there HIV counselling and testing sites in Tamale?						
Yes	206	68.2	0.326	0.940	192	14
No	48	15.9			45	3
Don't know	48	15.9			44	4

Table 4.11(b) continued.

Characteristics	Total sample				Inadequate knowledge	Adequate knowledge
	n	**%**	***X²***	***p*-value**	***n***	***n***
Previous contact with an HIV- positive person?						
Yes	27	8.9	0.484	0.706	26	1
No verified contact	275	91.1			255	20
Self-assessed risk of HIV						
Very high	6	2.0	2.368	0.583	6	0
High	8	2.6			7	1
Don't know	88	29.1			83	5
Low	36	11.9			35	1
Very low	164	54.3			150	14
Interactions with HIV+ persons						
Not sure how to react and communicate	98	32.5	3.020	0.345	93	5
Stop my contact with the person	19	6.3			17	2
Reduce the contact	84	27.8			80	4
Keep the same level of contact	101	33.4			91	10

n: number of students, X^2: chi-square

Source: Field survey data, 2021

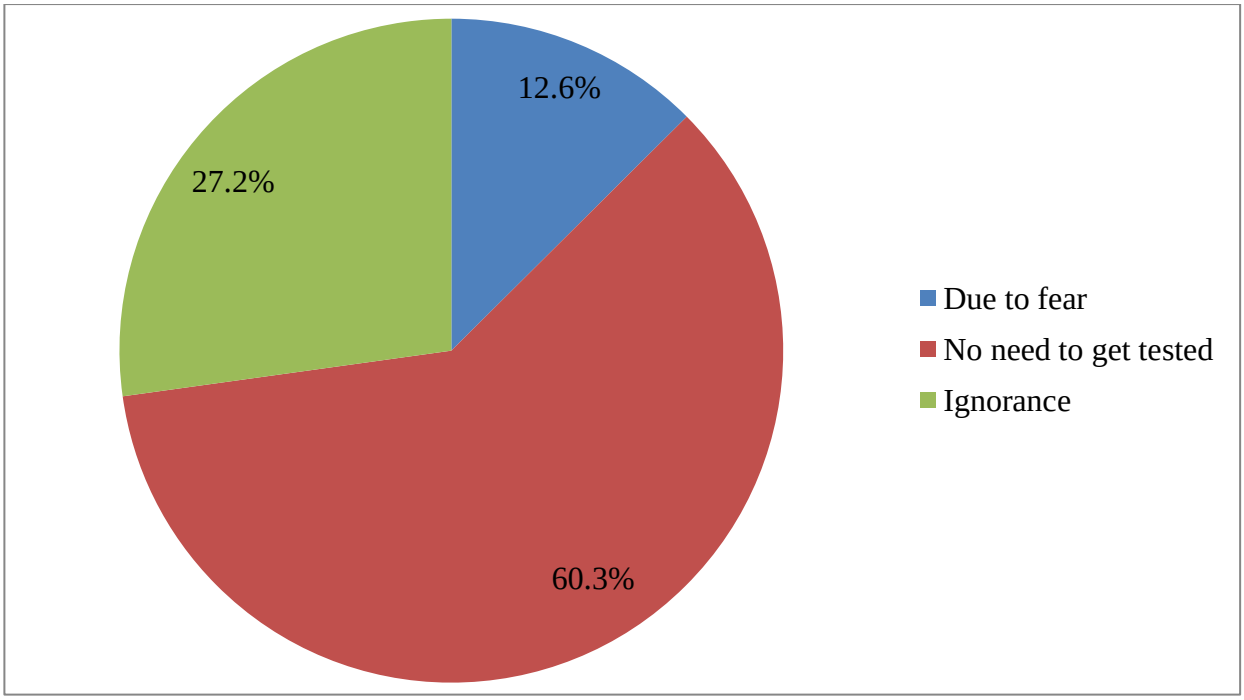

Figure 4.2: Reasons for not testing for HIV

Source: Field survey data, 2021

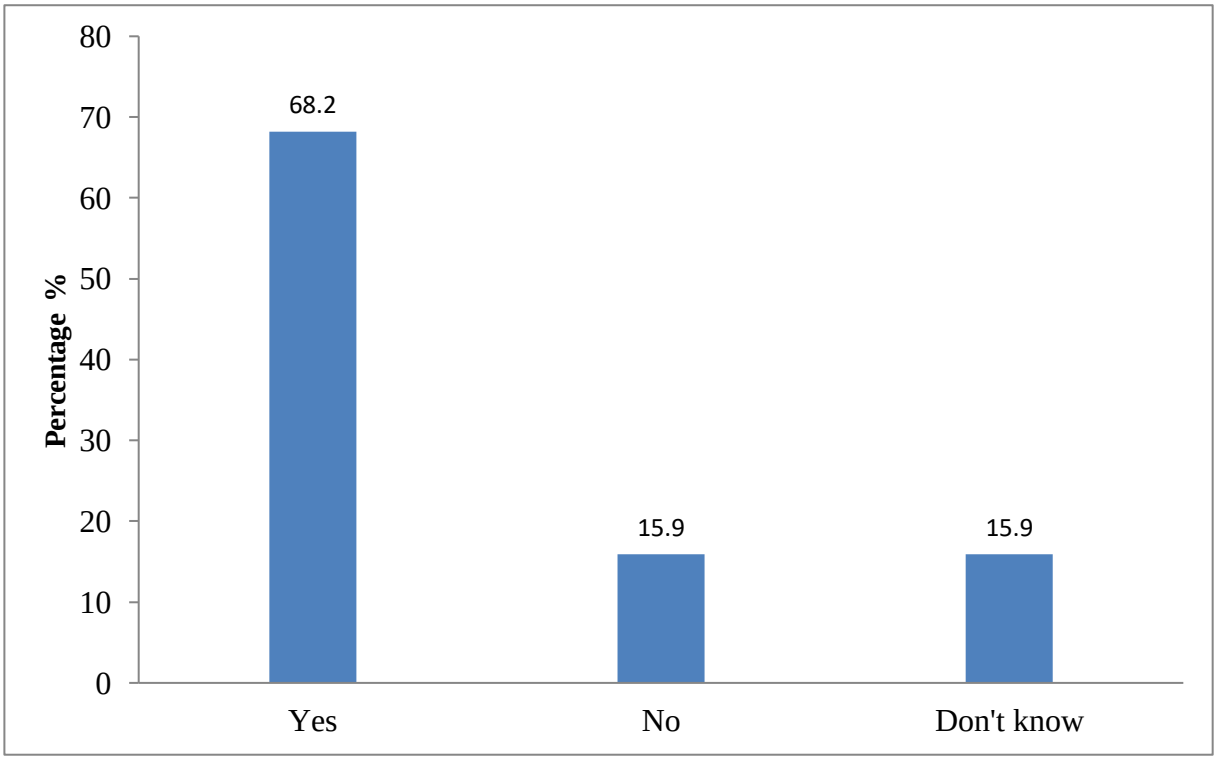

Figure 4.3: Do you know of any HIV Testing Sites in Tamale

Source: Field survey data, 2021

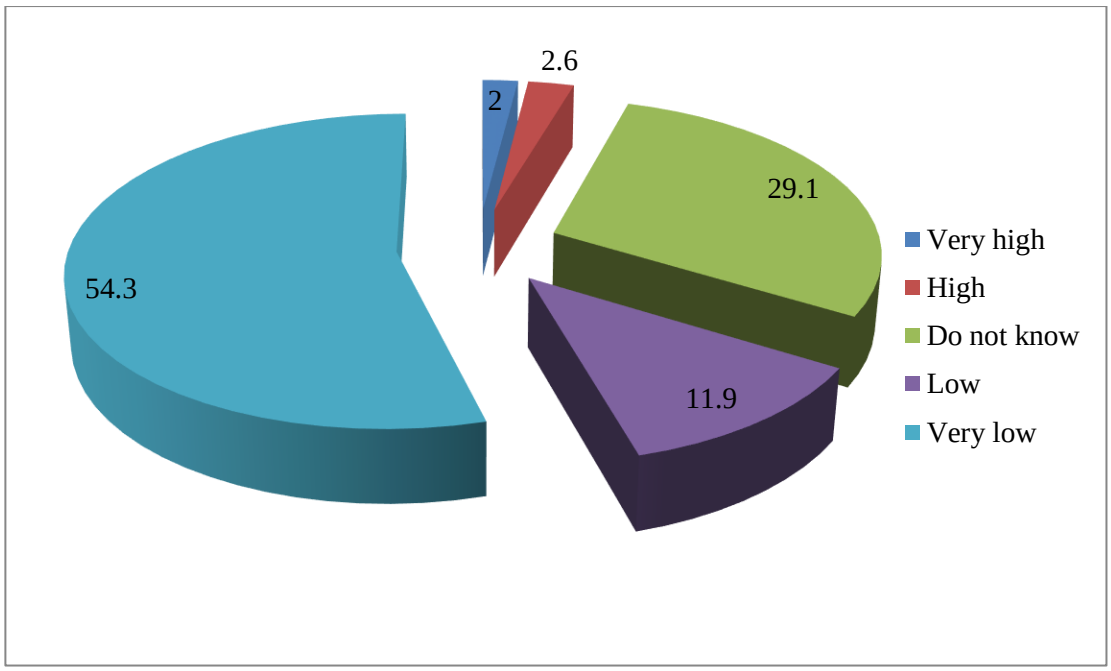

Figure 4.4: How will you categorize your risk of acquiring HIV

Source: Field survey data, 2021

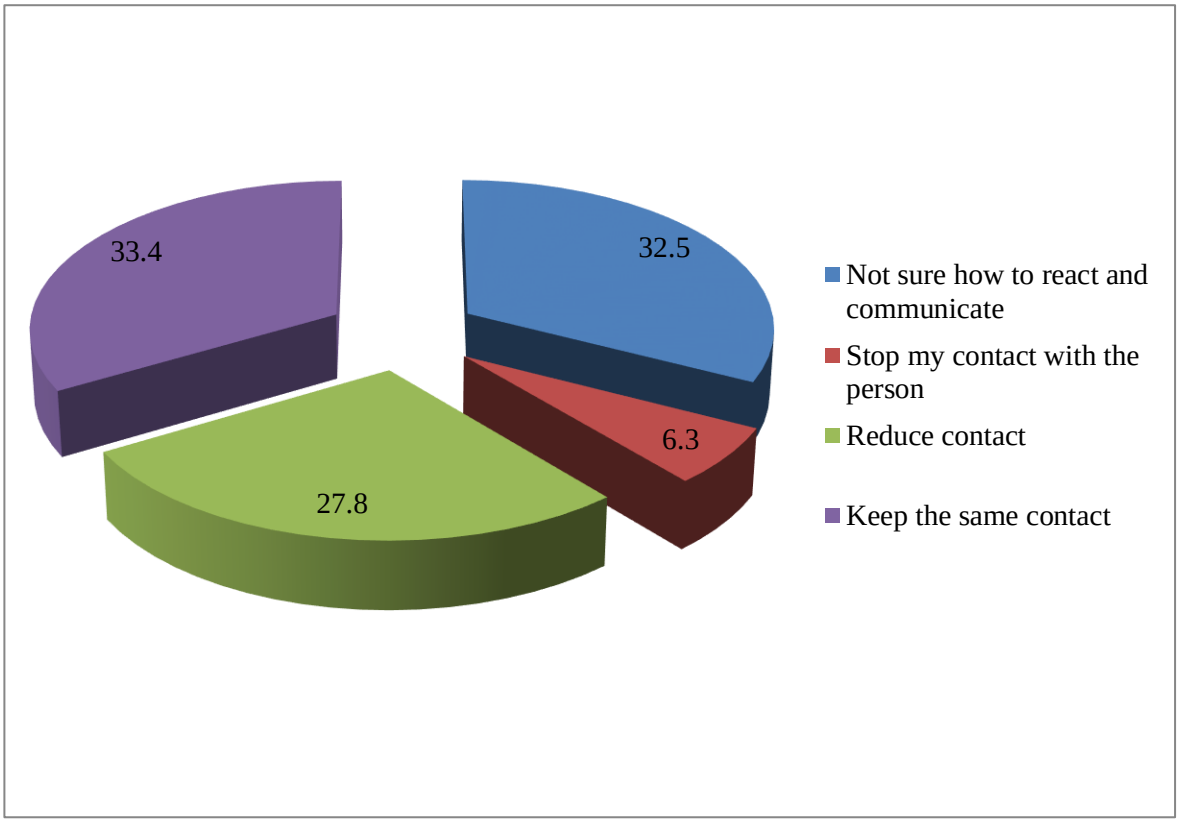

Figure 4.5 What will you do if you find out someone you know is HIV- positive

Source: Field survey data, 2021

CHAPTER FIVE

DISCUSSION

5.1 Introduction

There is a need to prevent HIV transmission beyond risk groups into the general community. To comprehend the HIV epidemic among these populations, essential aspects such as individual awareness of HIV transmission, attitudes, and risky behaviours must be monitored. This chapter discusses the finding of the study in relation to existing literature. The HIV knowledge level of participants are discussed first and followed by the findings of the other objectives.

5.2 HIV Knowledge level of Students

The overall level of HIV knowledge of the respondents was inadequate with a mean score of 10.77 ± 3.31. This finding disagrees with that of Oppong (2013) in Ghana which stated that most HIV/AIDS knowledge studies reveal that majority of respondents have a high level of HIV/AIDS knowledge. Another contrasting finding from Zwane (2012) points out that the most fundamental shift in the preceding decades is that the majority of African youth have grown better knowledgeable about HIV/AIDS. A study also conducted by Sahile et al. (2015) in China found that students in Xinjiang had a reasonably high level of knowledge on concerns connected to HIV/AIDS transmission in general, with 74.5% of respondents having a good level of understanding.

However, our finding agreed with Zwane (2012) when it indicated that respondents have exhibited a deficit in numerous areas by pondering in either erroneous replies or uncertainty by responding with "do not know" to HIV knowledge questions. In this research, there was

an average of 58% correct on the HIV-KQ-18, which is only 8% more than the findings conducted by Swenson et al. (2010).

The evaluation of individual knowledge item scores suggests the requirement for more comprehensive HIV/AIDS education in tertiary institutions. Participants performed better on items testing broad knowledge than on items assessing specialised knowledge, which is unsurprising. To be specific, increased education on effective condom use and HIV testing is required.

Most students did not comprehend the significance of the material condoms are made of, with 42% believing that natural skin condoms were better at preventing HIV than latex condoms. Most of the respondents also had limited knowledge of lubricants, with about 35% believing that oil-based lubricants (which reduce the quality of latex and increase the chance of breakage) reduce the risk of HIV. Furthermore, only 37% believed that HIV could not be detected through a test one week following exposure. Because HIV antibodies usually take three months to reach levels detectable by an HIV test after exposure, recent seroconverters who are tested soon after becoming infected may assume they are HIV negative and continue to transmit the virus throughout this period of high infectiousness (Kong et al., 2019).

Unlike the study conducted by Swenson et al. (2010) that stated that 85% of respondents believed most pregnant women with HIV give birth to infants with HIV, only 31% of students in our findings had similar beliefs. In actuality, without prevention of mother-to-child transmission (PMTCT) interventions, the overall rate of vertical HIV transmission varies from 15 to 45% from mother to child (Ngadaya et al., 2021).

In addition to this, prophylactic use of antiretroviral therapy during pregnancy and in the new-born has reduced mother-to-child transmission to about 1-2% (Siegfried et al., 2011). Although there is a possibility that respondents misinterpreted this item as referring to

pregnant women who weren't on antiretroviral therapy and didn't know the difference between HIV and AIDS, the belief that mother-to-child transmission is unavoidable may deter young pregnant women from seeking prenatal HIV testing.

The students incorrectly answered that a person can get HIV from oral sex (48%), using Vaseline or baby oil with condoms lowers the chance of getting HIV (65%), people are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV (81%), a person will not get HIV if he or she takes antibiotics (41%) and a person can get HIV from sharing a glass of water with someone who has HIV (36%). According to Nkwonta & Harrison (2021), when asked whether HIV could be transferred through anal sex, one out of every four university students in the present sample either did not know or answered wrongly. Similar to our study, one out of every four individuals was unsure whether or not antibiotics could be used to prevent HIV (Nkwonta & Harrison, 2021).

This demonstrates the persistence of HIV/AIDS misconceptions in Ghana and elsewhere. This is due to a lack of HIV/AIDS education among tertiary students. Furthermore, this can be explained by the fact that students only learned basic technical facts regarding HIV without understanding how the disease spreads (Reddy & Frantz, 2011).

5.3 Effect of Socio-demographic factors on HIV Knowledge

Our studies found no significant differences in the mean knowledge on HIV [$t(300) = 0.84$, $p = 0.402$] between the male and female students even though the average knowledge score for the males (10.86 ± 3.36) was slightly higher than that of the females (10.49 ± 3.16). On the contrary, the results of an independent sample t-test conducted by Oppong & Oti-Boadi (2013) compared the differences in the mean knowledge on HIV/AIDS according to gender and it indicated that female students had more knowledge about HIV/AIDS than male students.

There was a significant difference between the age of students and the level of HIV knowledge of sexual risk behaviours from our findings. This means that those that were older had better knowledge of HIV sexual risk behaviours than those that were younger probably because they had more time to learn more about the disease. Our finding agreed with Alawad et al. (2019) study which also indicated that respondents that were 23 years and older had higher HIV knowledge than those that were below 23 years.

Our finding showed that respondents who were single (n = 281, M = 10.70, SD = 3.323) and those that were married (n = 21, M = 11.67, SD = 3.055) had no statistically significant difference between the two groups $t(300) = -1.29$, $p = 0.199$. However, another study demonstrated a statistically significant difference in the HIV/AIDS knowledge scores for the marital status of the participants (Oppong & Oti-Boadi, 2013).

There was a statistically significant difference in the HIV Knowledge scores for the three religious groups. Also, Christian students were significantly associated with Christian students who had the most HIV knowledge of sexual risk behaviours, followed by the Muslims. Those that belonged to other religious groups had the least knowledge on HIV sexual risk behaviours. The result could be because the Christian students had more exposure to HIV education in their respective places of worship than the Muslims and those belonging to other religions. This finding however was contrary to that of Oppong & Oti-Boadi (2013) which indicated that Muslims had more knowledge on HIV/AIDS than Christians.

Also from our findings, the students in level 100 had the lowest knowledge of HIV than those in the upper levels. The first-year students in a study by Sahile et al. (2015) and Alawad et al. (2019) also had lower levels of HIV knowledge than their seniors. This is probably because the college students in the higher levels had relatively more exposure to lectures on HIV education than the new students. However, the HIV knowledge level between the students in

levels 200, 300 and 400 was quite in consistent whereby those in level 300 had the highest level of HIV knowledge, followed by those in level 200.

Our finding showed that the allowances/income that students received monthly influenced their level of HIV knowledge. However, the results were quite inconsistent because even though those that received over 400gh cedis monthly had more knowledge about HIV, those that received less than 100gh monthly had more knowledge about HIV than those that received 100gh cedis to 200gh cedis monthly. According to Ugarte et al., (2013), poverty as a socioeconomic factor is an important determinant of knowledge related to HIV because restricts access to health information accessibility. This means that students with more allowance can afford internet data and other means in order to gain more access to HIV information.

5.4 Association of sexual risk behaviours with HIV Knowledge

Unfortunately, regarding HIV sexual risk behaviours, none of the behaviours indicated in the study was associated with the HIV knowledge level of the students. Similar to the findings of Nubed & Akoachere (2016), the majority of the students in our study indicated they learned about HIV in school. This suggests that the school served as a common source of HIV and AIDS information, which bodes well for school-based HIV and AIDS programs. However, all the sources of HIV information did not influence the student's level of HIV knowledge even though students who learned about the disease from the internet had the highest level of HIV knowledge. Coincidentally, according to Milic et al. (2020), the majority of students with adequate HIV knowledge indicated the internet as their source of HIV information. It is of my opinion that even though many of the students learned about HIV in schools, either the quality of lectures (lessons) on HIV were below par or incomprehensible compared to HIV information on the internet. Also, according to Halabi et al. (2013), despite increased financial resources for HIV prevention and treatment, the quality of HIV information found

in school-based curriculum remains poor and almost half of the HIV/AIDS program curricula contained factual mistakes or omitted critical information, potentially leading to medically harmful misunderstandings about HIV and AIDS transmission and prevention among the target groups.

The majority of the students admitted they were in a committed relationship, close to a quarter of students were in a casual relationship and only 4.2% were not in any kind of relationship. More than half of the participants had ever had sexual intercourse, 44% were sexually active and the average age of first sexual encounter was 19 years for both genders. Similar research reported that 33.5% of Ghanaian adolescents had ever had sex and about a third of those who were sexually experienced had multiple sexual partners (Kugbey et al., 2018). As indicated in Ugarte et al. (2013) findings, the average age of first sexual encounter was 16 for men and 18 for women, which was comparatively lower than our findings.

Our findings supported earlier studies showing that men were more likely than women to have many partners and were less likely to consider themselves at higher risk of HIV transmission. This is because more of the sexually active male students had other partners outside their relationships compared to that of the females. There is additional evidence that females' perceptions of their susceptibility to HIV are influenced by their partner's risk behaviours (Cianelli et al., 2010). The type of partner students had their last sexual relations with and their number of sexual partners in the last 12 months had no association with their level of HIV knowledge even though those who admitted to being faithful to only one partner or were not in any kind of relationship had the highest level of HIV knowledge. This means their knowledge about HIV transmission had manifested in their sexual lives thereby protecting them from any possible infection.

Our findings indicated a considerably high prevalence of risky sexual behaviours among the university students because approximately 60% and 61% of students that ever engaged in sexual activity reported that they failed to use a condom during their first and last encounter respectively. Other studies carried out in China (Tung et al., 2013) and Nicaragua (Ugarte et al., 2013) showed similar findings. The percentage of students in our study that did not use protection during their last encounter was lower compared to research by Kugbey et al. (2018) which stated that 74% of sexually experienced Ghanaian adolescents did not use a condom during their last sexual intercourse. This is probably because the participants in our study were older and in the university with more exposure to knowledge about HIV transmission. Even though a vast majority of students were aware that HIV/AIDS could be contracted after having sex only once without protection, the study found that there was a low likelihood that students would integrate their knowledge about HIV transmission into healthy behaviour.

From our study, over half of the students that failed to use a condom during their last sexual encounter stated they did not like condoms in general, which we believe may be due to the possibility that they do not gain the kind of sexual satisfaction they require from sex whenever they use a condom. Secondly, some of the students (more especially the female students) believed their sexual encounter was a symbol of their love and commitment. Previous research has found that male displeasure with condoms, women's perceptions that the use of a condom may suggest mistrust, and seeing unsafe sex as a symbol of love may all result to condom use inconsistency with regular partners, rather than the self-perception of risk, availability of condoms, as well as cost (Ugarte et al., 2013). Negotiation skills, age of partner, increased degree of sexual and HIV communication and nonaggressive sexual relationships are more prominent indicators of steady condom utilization (Cianelli et al.,

2010). Conversely, it has been accounted for that the use of condom has increased in casual sexual intercourse, particularly commercial sex (Wangmu et al., 2021).

Only a few students admitted they sometimes drink alcohol and smoke or use drugs. Furthermore, 12.3% of those that were sexually active admitted to using or smoking substances (drugs) and drinking alcohol before or during their sexual relations. According to similar surveys, 22.1% of sexually active high school students admitted to using drugs or alcohol before their most recent sexual intercourse (Centers for Disease Control and Prevention, 2012). As a result, substance abuse and unsafe sexual practices have continuously been associated with sexually transmitted diseases (STDs) among teenagers (Schulte & Hser, 2014). Sexual intercourse without protection and a history of sex with several partners are more common among social and chronic substance users (Tapert et al., 2001). Alcohol has been recognized as a driving force behind the HIV epidemic, boosting HIV acquisition/transmission and disease development through behavioural and biological mechanisms (Morojele et al., 2021).Majority of HIV seroconversions are caused by sexual activity (UNAIDS, 2020), and alcohol has been linked to a lower likelihood of engaging in actions required to avoid the acquisition/transmission of sexually-based HIV. Taking in alcohol before or during a sexual encounter can cause alcohol myopia (Morojele et al., 2021), which involves a constraint incognitive capacity induced by alcohol that leads to a focus on risk-impelling cues (e.g., sexual arousal) while disregarding risk-inhibiting cues (such as the acquisition/transmission of HIV),thereby increasing the chances of sex without condom use. Several reviews and meta-analyses (Baliunas et al., 2010; Shuper et al., 2010) have supported this mechanism and the accompanying alcohol–condomless sex association, as well as controlled trials that have provided evidence for the causal nature of this link (Baeten et al., 2012).

There is proof that students take part in unsafe sexual activity without being aware of their companion's HIV status (Ajayi & Akpan, 2019). In our findings, over three-quarters of the sexually active students were not aware of the HIV status of their last sexual partners. It was higher when compared with another study conducted in South Africa where 62% were unaware of their last partner's HIV status (Ajayi et al., 2019). Evidence suggests that having knowledge of a partner's HIV status has a significant association with a higher probability of ever been tested for HIV. For instance, university students who were aware of their companion's HIV status were multiple occasions almost certain to have tested for HIV than students that were unaware (Ajayi et al., 2019). According to Matthews et al. (2013) research, knowing a partner's status empowers transparency between partners, improving the likelihood of both parties getting HIV tested.

In addition to our finding, only 15.6% of students had ever been diagnosed with a sexually transmitted infection. The finding is comparable with those of studies conducted on the University students in Northwest Ethiopia (18.2%) (Kassie et al., 2019) and Addis Ababa (15.7%) (Alemu & Assefa, 2014) but was slightly lower than that of another study conducted on students of Debre Birhan University (28%) (Rahel Abebe, 2012) and Mekelle female youth (21.3%) (Fisseha, 2015). The difference in rates may be related to differences in the research subjects. This study included both male and female participants, whereas the Mekelle study only included female participants. Furthermore, females are more susceptible to sexually transmitted infections than males (Kassie et al., 2019). Identification of sexually transmitted infections, dissemination of pertinent information, and provision of necessary health services are all effective interventions in the prevention and control of STIs (Kassie et al., 2019).

Only 7.8% of sexually experienced students had ever had sexual intercourse with a sex worker which was comparable with a study done at Bahir Dar University (7.4%) (Mulu et al.,

2014). However, the percentage was lower than the findings of Berhan et al. (2011) where a significant number of students (46.1%) admitted to having had sexual relations in the last 12 months with a sex worker also known as ‘bar lady’. This difference in rates might be due to different levels of HIV knowledge concerning the mode of transmission and risk sexual behaviours among students in different countries.

Most students considered "abstinence" as the best method of lowering the risk of HIV transmission. However, few students believed "always wearing a condom" and "being faithful to partner" were the best prevention techniques. Few HIV/AIDS-related health education interventions for adults have been established in Ghana, and they mostly stressed fear-based abstinence with the idea that having sex under any conditions lead to AIDS infection (Halabi et al., 2013). Recent HIV prevention strategies in Ghana promote condom use among young people as a strategy for dual protection against pregnancy and HIV, establish and maintain gender-specific interventions for young people in and out of school, and design and implement innovative approaches to improve young people's accepting attitudes toward people living with HIV (PLHIV) (Ghana AIDS Commission, 2016). The best HIV prevention methods each student chose did not influence their level of HIV knowledge.

5.4 Association of HIV testing attitudes with HIV knowledge

According to Oppong & Oti-Boadi (2013), more of the male students (67%) stated they were interested in testing for HIV in the near future when contrasted with only 38.8% of their female students. However, it was the exact opposite in our finding where most of the students exhibited a positive attitude towards HIV testing with more of the females (75%) expressing interest in testing for HIV than the male students (66%). Also, more female students had ever tested for HIV than the male students which could mean that the female students were much more interested in their sexual health status than the male students. This result was similar to

a study conducted by Redfield et al. (2018) which stated that female students had a greater prevalence of having ever been tested for HIV (10.5%) than male students (8.1%). An interesting finding of our study is that about 79% of the students stated that they never tested for HIV even though more than 68% of them knew there were HIV counselling and testing sites in Tamale. 68% of respondents reported they were interested in testing but about 10% were afraid of testing positive for HIV. 48% of students did not see the need for testing probably because they had never had any sexual experience in the past and 21% failed to test out of ignorance. Even though the knowledge level of students was not influenced by the reasons for not testing for HIV, those that failed to test out of ignorance had the lowest knowledge about HIV. This study is in line with Caldeira et al. (2012) findings, which found that a larger part of public university students had not been tested for HIV. It was also in line with Oppong & Oti-Boadi (2013) finding that stated that over 90% of the respondents reported knowing where to have an HIV test, but only 45% had ever tested for HIV. The testing rate of HIV in this study was comparable to that reported in the United States (9.3% – 47.5%), Ireland (17.5%) and Cameroon (40%) (Choudhary et al., 2015; Nubed & Akoachere, 2016; Redfield et al., 2018). According to Lin et al. (2017) , students' perceived insusceptibility and low emotional self-efficacy are significant hurdles to testing for HIV.

From our finding, only about a quarter of students that ever tested for HIV tested in the last 6 months. However, the HIV knowledge level of students was not influenced by whether or not they tested for HIV in the last 6 months, even though all those that tested within this period had less number of people with adequate levels of HIV knowledge than those that never tested in the last 6 month. This could probably be due to the possibility that even though some of the sexually active students that had ever tested for HIV knew much about HIV, they did not test in the last 6 months because they were scared they might test positive. Flack et al. (2007) found and recorded a huge number of casual relationships which was a widely

accepted practice on college campuses known as "hooking up," and it encourages sexual interaction without commitment or even affection. This behaviour occurs between people who do not know each other well and have no intention of continuing their relationship (Flack et al., 2007). When lots of students engage in risky sexual behaviour but have never been tested for HIV, the infected students are likely to infect their uninfected partners without even realizing it. These findings point to a significant public health risk for university students.

Majority of the students admitted to not having any previous contact with HIV- positive people, and a greater percentage believed their risk of being infected was very low. This finding should be evaluated because only 21% of students had ever tested for HIV. About 60% of the students did not believe they needed to be tested. It's unclear whether they were truly at low risk of being exposed (i.e. used condoms always and never been exposed to blood that was infected). This could likewise be clarified by the student's underestimation of the probability that their prospective partners might have the HIV virus. From our findings, whether students had previous contact with HIV- infection persons or not and their self-assessed risk of HIV did not have any association with their knowledge scores. In other words, these factors did not influence the level of HIV knowledge of the students unlike the findings of a study conducted by Milic et al. (2020).

An interesting discovery in our study was the fact that university students who were well-informed on HIV indicated a moderate attitude about contact with HIV-positive people. A higher percentage of students stated they would keep the same level of contact if they found out someone they knew was HIV- positive, while close to one-third of students admitted that they were not sure how they would react and communicate. Just a small percentage of students admitted that they would cease all contact with the people infected with HIV. The student's interactions with HIV+ persons did not influence their level of HIV knowledge.

However, those that stated they would keep similar degree of contact with persons infected with HIV had the highest level of HIV knowledge. Another study backs up the idea that having a better understanding of HIV transmission reduces dread of infection and allows one to continue similar levels of interaction with persons who declare their HIV-positive status (Baytner-Zamir et al., 2014). Improved HIV understanding has significant effects for eliminating stigma against individuals that are HIV-positive. Stigmatization of HIV-positive people, in particular, can lead to a reduced degree of HIV counselling and testing, confinement, mental issues, low level of confidence, and a lack of desire in seeking appropriate treatment (Milic et al., 2020; Turan et al., 2017).

5.5 Study limitations

Because the data analysis was based on cross-sectional data, a causal explanation of the findings was not possible. Also, due to the small sample size and the fact that only non-medical students were employed in the study, the findings cannot be extrapolated to the general undergraduate student population in Ghana.

Furthermore, all variables were measured using self-report instruments and due to the delicate nature of HIV/AIDS, it may have resulted in some information bias due to young people's reluctance to share information about their sexual behaviour and a tendency toward providing responses that were more acceptable in society. The study only depended on the data provided and failed to confirm the HIV testing history of the respondents.

Our study primarily concentrated on HIV knowledge and sexual risk behaviours, and only utilized single items to assess additional variables such as HIV risk assessment and attitude toward persons living with HIV; multi-item scales may provide more accurate and nuanced evaluations (Napper et al., 2012).

Other means of collection of data, such as focus group discussions and interviews, should be used in future studies.

CHAPTER SIX

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In conclusion, this study demonstrated that majority of the enrolled students at the UDS Nyankpala campus had inadequate knowledge of HIV regarding its various modes of transmission. Christians, students 25 years and over and level 300 students had the highest level of HIV knowledge in their respective sub groups. However, the socio-demographic factors had no effect on the HIV knowledge levels of students while the sexual risk behaviours of students, their attitudes toward HIV testing and attitudes toward people living with HIV had no association with their level of HIV knowledge.

In addition to this, most of the students showed positive attitudes towards testing for HIV and moderate attitudes towards people living with HIV. Also, over half of the students assessed their risk of HIV to be very low while only 2% assessed their risk as very high. The findings of this study serve as evidence for the need to invest in sex education in schools on HIV transmission and prevention for a long-term positive impact on university students in Tamale regarding their sex lives.

6.2 Recommendation

Based on the observations and analysis in this, these recommendations are being suggested to the Ministry of Health, Ministry of Education and future research on HIV in Ghana.

- The report suggests that sexual and reproductive health education be implemented in primary and high schools by the Ministry of Education and its agencies. Sex education in schools has been viewed as a successful measure to lessen the rate of STIs, including HIV, according to a survey of 24 European countries. These programs have proven to be especially effective in preventing unintended adolescent

pregnancies (Ketting & Ivanova, 2018). Developing focussed and supplemental seminars on this issue in universities and secondary schools could assist raise STI awareness, especially HIV awareness.

- HIV and other STIs counselling and testing should be made available by the Ministry of Health at all times at the UDS Nyankpala Clinic and other health facilities on all university campuses around the country.
- The introduction of HIV-related websites by the Ministry of Health, administered by professionals in preventative medicine, where internet users can simply and secretly receive information about delicate health matters would be advantageous.
- The findings of the study can be used to help other academic institutions develop guidelines for implementing preventative methods and design policies to enhance HIV prevention programs and training.
- Finally, the findings of the study could be utilized as a starting point to analyse other factors that may influence HIV knowledge levels and HIV testing rates.

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APPENDICES

APPENDIX I: Questionnaire

UNIVERSITY FOR DEVELOPMENT STUDIES, TAMALE (MASTER OF PUBLIC HEALTH)

QUESTIONNAIRE

Topic: Assessing HIV/AIDS Knowledge, Attitudes and Behaviors within the context of Sexual Risk Behaviors among Students of UDS Nyankpala Campus.

Dear Respondent,

I am a student of the University for Development Studies and conducting a study on HIV/AIDS Knowledge, Attitudes and Behaviors within the context of Sexual Risk Behaviors among Students of UDS, Nyankpala Campus. Although the purpose of this study is an academic requirement, findings and recommendations arising out of the research would be used by health care providers and other stakeholders in the pursuit to improve the HIV health status of Ghanaians.

I will therefore be appreciative if you could spare about 15 minutes of your time to answer the following questions to the best of your ability. As and when you wish to discontinue participating is your choice; however, honest responses are needed to all questions. You will not have to put any personal details of yourself and so your answers will be completely anonymous. When you are done, kindly put it in the envelope, seal it and hand it over. Thank you.

Do you agree to participate in this survey?

Agree: ..... Disagree: .....

Date: ___/____/2021

****Instruction**: Fill in the blank spaces and circle where appropriate. Thank you.

A) Demographic Data

1) Gender: ☐ Male ☐ Female

2) Age: _____

3) Course Name: _____

4) Level: _____

5) Residence: ☐ School hostel ☐ Private hostel ☐ Live with family

6) Religion: ☐ Christian ☐ Muslim ☐ Other

7) Relationship/ Marital status:
☐ Single
☐ Married
☐ Divorced or Separated
☐ Have a partner but do not live with him/her
☐ Live with a regular partner

8) Monthly allowance or income: ☐ Less than 100gh ☐ Between 100 - 200gh
☐ Between 200 - 300gh ☐ Between 300 - 400gh
☐ Between 400 - 500gh ☐ Above 500gh

B) <u>Knowledge on HIV Sexual risk behaviours.</u>

For each statement, please circle 'True' (T), or 'I don't know' (DK). If you do not know, please do not guess; instead, please circle 'DK.'

	Questions	**True**	**False**	**I don't know**
1)	Having sex with more than one partner can increase a person's chance of being infected with HIV.	T	F	DK
2)	Taking a test for HIV one week after having sex will tell a person if she or he has HIV.	T	F	DK
3)	A person cannot contract HIV from having sex only once without a condom.	T	F	DK
4)	A person can get HIV from oral sex.	T	F	DK
5)	Using Vaseline or baby oil with condoms lowers the chance of getting HIV.	T	F	DK

6)	A natural skin condom works better against HIV than does a latex condom.	T	F	DK
7)	There is a female condom that can help decrease a woman's chance of getting HIV.	T	F	DK
8)	A woman cannot get HIV if she has sex during her period.	T	F	DK
9)	People are likely to get HIV by deep kissing, putting their tongue in their partner's mouth, if their partner has HIV.	T	F	DK
10)	Showering, or washing one's genitals/private parts, after sex keeps a person from getting HIV.	T	F	DK
11)	A woman can get HIV if she has anal sex with a man.	T	F	DK
12)	Coughing and sneezing DO NOT spread HIV.	T	F	DK
13)	A person can get HIV from sharing a glass of water with someone who has HIV.	T	F	DK
14)	There is a vaccine that can stop adults from getting HIV.	T	F	DK
15)	A person can get HIV by sitting in a hot tub or a swimming pool with someone who has HIV.	T	F	DK
16)	A person will NOT get HIV if he or she takes antibiotics.	T	F	DK
17)	People who have been infected with HIV quickly show serious signs of being infected.	T	F	DK
18)	All pregnant women infected with HIV will have babies born with HIV.	T	F	DK

C) <u>Sexual Risk Behaviours</u>

1) Where did you first learn about HIV?

- ☐ Media (TV, radio, newspapers)
- ☐ Internet
- ☐ Medical sources/ facilities
- ☐ School curriculum
- ☐ Specialised HIV- related education programs

2) Do you have a boyfriend/girlfriend?

☐ Yes ☐ No

3) Have you ever had a sexual intercourse?

☐ Yes ☐ No

If your answer is 'No', please skip questions 4 to 18 in this section.

4) If Yes, how old were you? _____ Years.

5) Are you sexually active?

☐ Yes ☐ No

6) Which of the following applies to you currently?

☐ I'm in a steady relationship (with a boy/girlfriend/spouse) ☐ I'm in a casual sexual relationship with others. ☐ Both

7) Which of the following best describes your partner in your last sexual encounter?

☐ Your spouse ☐ A casual partner ☐ A boy/girlfriend

8) When you have sexual intercourse, how often do you or your partner use a condom?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

9) Did you use a condom during your latest sexual intercourse?

☐ Yes ☐ No

10) Did you use a condom during your very first sexual intercourse?

☐ Yes ☐ No

11) If No, what was your reason?

☐ Do not like condoms. ☐ It's a symbol of love and commitment.

12) Do you drink alcohol?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

13) Do you smoke or use substances (drugs)?

☐ Never ☐ Rarely ☐ Sometimes ☐ Often ☐ Always

14) Have you ever used alcohol or any substance (drug) before or during sexual relations?

☐ Yes ☐ No

15) Number of sexual partners in the last 12 months?

☐ 0-1 ☐ 2-5 ☐ ≥6

16) Have you ever been diagnosed with an STI?

☐ Yes ☐ No

17) Do you know the HIV status of your last partner?

☐ Yes ☐ No

18) Have you ever had a sexual intercourse with a sex worker?

☐ Yes ☐ No

19) Which of the following do you consider as the best way of reducing the risk of sexual transmission of HIV?

☐ Always use a condom. ☐ Staying faithful with your partner. ☐ Sexual abstinence

D) <u>Attitude towards persons with HIV and HIV testing</u>

1) Are you interested in testing for HIV?

☐ Yes ☐ No

2) Have you ever tested for HIV?

☐ Yes ☐ No

3) If no, why?

☐ Due to fear ☐ No need to get tested ☐ Ignorance

4) If you have ever tested for HIV, have you tested in the last 6 months?

☐ Yes ☐ No

5) Are there any HIV testing sites in Tamale?

☐ Yes ☐ No ☐ Don't know

6) Have you ever had any contact with an HIV- positive person?

☐ Yes ☐ No verified contact

7) How will you categorize your risk of acquiring HIV?

☐ Very high ☐ High ☐ Do not know ☐ Low ☐ Very low

8) What will you do if you find out someone you know is HIV- positive?

☐ Not sure how to react and communicate ☐ Stop my contact with the person ☐ Reduce the contact ☐ Keep the same level of contact

*****Thank you so much for your time.**

APPENDIX II: Letter of introduction

UNIVERSITY FOR DEVELOPMENT STUDIES
School of Public Health
Dean's Office

Tel :
E-Mail :
Local : 5:7811/106.15
Internet: www.uds.edu.gh
OUR REF:
YOUR REF:

Post Office Box TL 1883,
Tamale, Ghana, West Africa.

Date: 24rd June, 2021

The Principal
Nyankpala Campus
University for Development Studies
Nyankpala

Dear Sir/Madam

I am pleased to introduce to you, Vitalis Abeiyel Yangme, a second year Master of Public Health student from the from the School of Public Health. Mr. Vitalis is working on his thesis titled 'Assessing HIV/AIDS knowledge and Behaviours within the context of sexual risk behaviours and attitudes towards HIV teasting among students of UDS Nyankpala Campus. He will need information from students of your campus to enable him to accomplish this academic exercise. I will be grateful if you could help him have access to these students to enable him gather all the relevant information he may need.

Thank you in advance for accepting to receive him.

Yours Sincerely.

Adadow Yidana *(PhD)*
(Dean, SPH)

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SCHOOL OF PUBLIC HEALTH
UNIVERSITY FOR DEV'T
STUDIES, TAMALE