AKENTEN APPIAH-MENKA UNIVERSITY OF SKILLS TRAINING AND ENTREPRENEURIAL DEVELOPMENT

FACULTY OF ENVIRONMENT AND HEALTH EDUCATION

DEPARTMENT OF PUBLIC HEALTH EDUCATION

MAMPONG ASHANTI

THE INFLUENCE OF SOCIOCULTURAL FACTORS AND RISKY SEXUAL BEHAVIOUR ON THE TRANSMISSION OF HIV IN THE BOLGATANGA MUNICIPALITY OF THE UPPER EAST REGION, GHANA.

BY

GEORGE AHIAKA

OCTOBER, 2024

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A thesis submitted to the School of Graduate Studies, Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development, department of public health education in partial fulfilment of the requirements for the award of a Master of Philosophy degree in Public Health.

OCTOBER, 2024

DECLARATION

Candidate's Declaration

I hereby declare that this is the result of my own original work and that no part of it has been presented for another degree at this university or elsewhere.

CANDIDATE'S NAME: GEORGE AHIAKA

SIGNATURE ……. DATE…….

Supervisor's Declaration

We hereby declare that the preparation and presentation of the thesis were supervised in accordance with the guidelines on thesis supervision laid down by the Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development.

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ABSTRACT

Human Immunodeficiency Virus (HIV) remains a significant public health challenge in Sub-Saharan Africa, including Ghana, which has one of the highest rates in West Africa. However, research specifically on HIV prevalence among heterosexual males in Ghana is limited. This study investigated the prevalence, risk factors, and sociocultural determinants of HIV transmission among heterosexual males aged 18-64 in Bolgatanga Municipal, Upper East Region, Ghana. This cross-sectional study recruited 480 participants from five communities through multistage sampling, employing structured questionnaires and blood tests to assess HIV status. Data analysis using STATA 14 identified key predictors of HIV risk through multiple regression, setting statistical significance at $p<0.05$ with a 95% confidence interval. The study found an HIV prevalence rate of 3.7% (95% CI: 2.00–5.50) among the participants, notably higher than the national average of 1.6%. Significant risk factors included having multiple sexual partners, engaging in transactional sex, and sexual activities under the influence of alcohol or drugs. Cultural factors, such as the social acceptance of multiple sexual partners as a symbol of masculinity and family influences on sexual behaviour, were also associated with increased HIV risk. Additionally, widow inheritance practices, age, marital status, and educational attainment were identified as significant independent predictors of HIV infection among the participants. The findings highlight the need for targeted interventions in HIV prevention that address both behavioural and cultural factors. Interventions should consider the influences of masculinity norms, community expectations, and education levels on sexual health choices. This study's results emphasise the critical role of culturally sensitive health education and policies to reduce HIV transmission among at-risk populations in Ghana's Bolgatanga Municipality.

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DEDICATION

I dedicate this project work to my parents, siblings, and my wife.

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LIST OF ACRONYMS

AIDS…….. Acquired Immune Deficiency Syndrome

GoG……. Government of Ghana

HIV…… …..... Human Immunodeficiency Virus

KAP……...Knowledge Attitude and Perception

MoH……. Ministry of Health

NGO……..Non-Governmental Organization

SDG……...Sustainable Development Goals

STI……. Sexual Transmitted Infection

UNAIDS……United Nations Programme on HIV/AIDS

UNICEF…… United Nations Children's Fund

ABC…….. Abstinence, Be faithful, and Condom use.

OPERATIONAL DEFINITION OF TERMS

Heterosexual Male: males sexually attracted to people of the opposite sex (women).

Perceptions of Risk: The subjective assessment of heterosexual males' vulnerability to contracting HIV/AIDS based on their behaviours and circumstances

Acquired Immune Immunodeficiency Syndrome (AIDS) Is a disease state resulting from infection with the Human Immunodeficiency Virus **(HIV).**

Risky Sexual Behaviours: Activities that expose individuals to the risk of contracting HIV/AIDS.

Sociocultural Determinants: refer to the social and cultural aspects of a society that shape an individual's feelings, values, beliefs, norms, perceptions, behaviour, and interactions that are common to the society.

Sexually Transmitted Infections (STIs): are caused by bacteria, viruses, or parasites. They are predominantly spread through sexual contact, childbirth, and breastfeeding and through infected blood or fluid from an infected person

CHAPTER ONE

INTRODUCTION

1.1 Background

Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS) remains a global health challenge with over 85.6 million people infected with Human Immunodeficiency Virus (HIV) (WHO, 2023). About 39 million people were living with HIV worldwide at the end of 2022, with an estimated 0.7% of adults aged 15–49 years living with the infection, with the burden varying significantly across countries and regions. Africa continues to be the most severely affected; nearly one in every 25 adults (3.2%) is living with HIV, making up over two-thirds of all HIV-positive people worldwide (UNAIDS/WHO, 2023). Despite significant efforts to expand the availability of antiretroviral therapy (ART), HIV remains the leading cause of mortality in sub-Saharan Africa (UNAIDS/WHO, 2023).

According to the Ghana Aids Commission (GAC), the total number of individuals living with HIV was 354,927, of which 24,712 were children aged 0–4 years, 21,439 were adolescents aged 10–19 years, and 40,497 were youth aged 15–24 years (GAC, 2022). Like many other regions in Ghana, the Upper East region could not achieve the UNAIDS 90-90-90 target by 2020 (Ansah et al., 2021). A prevalence rate of 1.9% was recorded in the Upper East region, with an infection rate of 7,953, the highest among Ghana's five (5) northern regions (GAC, 2022). The Upper East region recorded 339 new infections and a death rate of 230 per year, with an adult prevalence of 0.77%, of which 4487 are on antiretroviral treatment with a total coverage of 77.7% in 2020 (GAC, 2022). The Bolgatanga municipality at the end of 2023 had an HIV prevalence of 1.74%, the highest among the 15 municipalities and districts in the region (GAC,

2022). In Ghana, heterosexual intercourse is the primary mode of HIV transmission, accounting for 75-80 of all cases (Ba et al., 2019). Bolgatanga Municipality exhibited the highest (1.74%) prevalence of HIV cases per population among the identified hotspot districts, with a rate of 322 HIV cases per 100,000 individuals. Nabdam District reported 175 cases, followed by Builsa North with 152 cases, Bongo with 149 cases, and Bolgatanga East with 112 cases per 100,000 individuals in the population (GHS, 2022). This rise in HIV prevalence is due to commercial sex work in certain parts of the municipality (GHS, 2022). The estimation of the HIV prevalence, risk factors, and the sociocultural determinants that are associated with HIV transmission is vital to understanding and developing context-specific policy and implementation of HIV prevention, awareness, treatment, and support interventions.

1.2 Problem Statement

Human Immunodeficiency Virus and Acquired Immune Deficiency Syndrome (HIV/AIDS) remains a global health challenge with over 85.6 million people infected with Human Immunodeficiency Virus (HIV) (WHO, 2023).. Africa continues to be the most severely affected; nearly one in every 25 adults (3.2%) is living with HIV, making up over two-thirds of all HIV-positive people worldwide (UNAIDS/WHO, 2023). Like many other regions in Ghana, the Upper East region could not achieve the UNAIDS 90-90-90 target by 2020 (Ansah et al., 2021). The Bolgatanga municipality at the end of 2023 had an HIV prevalence of 1.74%, the highest among the 15 municipalities and districts in the region (GAC, 2022)

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were adolescents aged 10–19 years, and 40,497 were youth aged 15–24 years (GAC, 2022). This rise in HIV prevalence is due to commercial sex work in certain parts of the municipality (GHS, 2022).

A series of strategies have been put in place to address the HIV/AIDS epidemic in recent years. Despite these measures and their possible gains, there has been a surge in HIV/AIDS prevalence in Bolgatanga Municipality in the Upper East region. These findings could be attributed to poorly defined causes of this life-threatening disease. In most cases, studies have mainly focused on women because over 50% of persons living with HIV/AIDS (PLWHA) globally are women (Erzuah, 2022). However, current evidence points to the fact that women's vulnerabilities are inextricably linked to men's behaviour, sanctioned by masculinity, cultural beliefs, socioeconomic factors, and risky sexual behaviours (Barker et al., 2010). Literature is scarce on sociocultural factors, risky sexual behaviours and how they influence the transmission of HIV/AIDS among the general population in the Bolgatanga Municipality. This study sought to explore the complex interplay between sociocultural factors and risky sexual behaviours that influence the transmission of HIV and STIs among heterosexual males aged 18 to 64 years in Bolgatanga Municipality, Upper East Region, Ghana.

1.3 Objectives of the study

The main aim of this study was to assess the prevalence, risk factors, and sociocultural determinants of HIV among heterosexual males aged 18 to 64 in the Bolgatanga Municipal.

1.3.1 Specific Objectives

1. Determined the prevalence of HIV among heterosexual males aged 18–64 years in Bolgatanga municipality.
2. Assessed the risk sexual factors of HIV among heterosexual males aged 18–64 years in Bolgatanga municipality.
3. Assessed the sociocultural determinants of HIV among heterosexual males aged 18–64 years in Bolgatanga.
4. Determined sociodemographic predictors of HIV among heterosexual males aged 18–64 years in Bolgatanga municipality.

1.4 Research Questions

1. What is the prevalence of HIV among heterosexual males aged 18–64 years in Bolgatanga?
2. What are the risk factors of HIV among heterosexual males aged 18–64 years in Bolgatanga municipality?
3. What are the sociocultural determinants of HIV among heterosexual males aged 18–64 years in Bolgatanga?
4. What are the sociodemographic predictors of HIV transmission among heterosexual males aged 18–64 years in Bolgatanga?

1.6 Justification

The Upper East Region has a unique economic factor that could increase the transmission of HIV. The Region is bordered by two neighbouring countries, Togo and Burkina Faso, which attract traders from all parts of the country and offer excellent opportunities for transmitting sexually transmitted infections (STIs) due to brisk

business cross-border activities involving migration and increased mobility. People moving across borders for work, trade, or other purposes may engage in risky sexual behaviours and unprotected sexual encounters, including unsafe sex and the possession of multiple sexual partners. These actions may increase sex workers' activities because migrant workers or traders seek companionship. The movement of people from areas with high HIV prevalence to areas with low HIV prevalence may result in levelling effects in the distribution of HIV infections. The consequences of sexual promiscuity and exploitation in this region pose a high risk of sexually transmitted diseases such as gonorrhoea, syphilis, and HIV/AIDS.

Despite the varied war against this unrelenting pandemic, understanding the social and cultural variables and risky sexual behaviours driving the transmission of HIV among heterosexual males emerges as a critical need (Erzuah, 2022). There are limited empirical studies on the interaction of sociocultural factors and risky sexual practices and how they predict the transmission of HIV among heterosexual males in Bolgatanga. These factors not only place heterosexual males at a higher risk of contracting HIV/AIDS compared to other males but also increase the vulnerability of males themselves (Klinken & Chitando, 2016). Understanding these dynamics was imperative to enable the development of context-specific policy direction for effective interventions to address the HIV/AIDS epidemic among men and their female counterparts, thereby reducing the associated public health burden in Bolgatanga.

1.7 The Significance of the Study

The results of this study provide new perspectives on sociocultural factors and risky sexual practices prevalent within Bolgatanga, mainly how they affect HIV transmission

among heterosexual males aged 18 to 64. No prior research has explicitly focused on this topic. The results contribute to scientific knowledge regarding sociocultural influences on risky sexual behaviour and their impact on HIV transmission in Bolgatanga. This research will be a reference for future studies and offers valuable information for organizations such as the Ghana Health Service, NGOs, and other stakeholders combating HIV/AIDS. The study's insights will assist policy development and offer a specific understanding of the challenges and strategies for HIV prevention in the Region.

1.8 Scope of the study

The study was limited to the Bolgatanga Municipal of the Upper East Region with the focus on determining the prevalence, risk factors and sociocultural determinants among heterosexual males aged 18 and 64 within selected communities in the Bolgatanga Municipal while determining the risk factors, including sexual practices such as age at first sexual debut, multiple sexual partners, inconsistent condom use, and the use of alcohol/drugs before sexual activity and sociocultural determinants such as early marriage, polygamy, wife and widow inheritance and community, family and peer influence decision making regarding sexual behaviour.

1.9 Limitation of the Study

This study explored a cross-sectional design to determine the risk factors, sociocultural determinants and sociodemographic predictors of HIV among heterosexuals but not the causality associated with the outcome variables.

This study mainly focused on heterosexual males aged 18 to 64 who reside within Bolgatanga Municipality in the Upper East region of Ghana. Even though the participants were from the Bolgatanga municipal, not all heterosexual males participated in the study, and the findings do not speak for all heterosexual males. Therefore, the findings cannot be generalised to all Ghanaian heterosexual males.

One of the significant limitations of this study is the reliance on self-reported data on risk factors, sociocultural determinates and sociodemographic where previous studies have revealed that men tend to overstate their premarital and extramarital sexual activities (Basia et al., 2002).

1.10 Organization of the Study

This study is organised into six chapters. The first chapter (Chapter One) introduced the study. The second chapter (Chapter Two) reviewed relevant literature on HIV based on the study's objectives. The third chapter (Chapter Three) presents the research methodology used in this study. The fourth chapter (Chapter Four) describes the study's key findings. The fifth chapter (Chapter Five) discusses the study's results, objectives, and the existing literature. Finally, the sixth chapter (Chapter Six) summarises key findings, recommendations, and conclusions.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter investigates sociocultural factors, risky sexual behaviours and how they predict Human Immunodeficiency Virus (HIV) transmission among heterosexual males aged 18 to 64 in Sub-Saharan Africa, Ghana and Bolgatanga Municipality, Upper East Region, Ghana. It will provide an in-depth analysis of how cultural norms, practices, and social pressure influence behaviour and contribute to the HIV epidemic. Through this analysis, the review seeks to inform culturally sensitive interventions that address this unique challenge. Other topics addressed include risky sexual behaviours, sociocultural factors influencing HIV transmission, the association between risky sexual behaviour, sociocultural factors and HIV transmission, and the association between sociodemographic predictors of HIV transmission among heterosexual males aged 18 to 64 in Bolgatanga.

2.1 Prevalence of HIV

2.1.1 Global Prevalence of HIV

HIV/AIDS remains a global health challenge, with more than 39.9 million individuals currently living with HIV (UNAIDS/WHO, 2024). Since the beginning of the epidemic, 88.4 million people globally have been infected with HIV, and the burden varies significantly across different countries and regions (UNAIDS/WHO, 2024).

2.1.2 Prevalence of HIV in African and Sub-Saharan Africa

The worldwide occurrence of Human Immunodeficiency Virus (HIV) and consequent acquired immune deficiency syndrome (AIDS) continues to be a significant public

health concern in Africa (Gallant, 2017; UNAIDS, 2022). Africa region continues to be the most severely affected; nearly one in every 25 adults (3.2%) is living with HIV, making up over two-thirds of all HIV-positive people worldwide (WHO, 2023). With eastern and southern Africa remains the most affected (UNAIDS, 2022). According to the Global AIDS Monitoring Report, the HIV prevalence rate among heterosexual males varies across different countries in sub-Saharan Africa, with some areas, such as Eswatini and Botswana, exhibiting HIV rates as high as 27% (UNAIDS, 2023).

2.1.3 HIV Prevalence in Ghana, Upper East, Bolgatanga.

In 1986, the first AIDS case was reported in Ghana, but systematic tracking began in 1990 with the establishment of the National HIV Sentinel Surveillance system, and between 1990 and 2004, the annual increase in AIDS-related deaths was approximately 14%. There was a rising trend in HIV prevalence due to limited access to testing and treatment options (Boah et al., 2023). By 2014, the Demographic and Health Survey (DHS, 2018) revealed an overall HIV prevalence of 2.0%, with significant variation across regions indicating that the HIV prevalence was more consistent among women than men, with 56% and 44%, respectively. Indicating a persistent gender disparity (DHS, 2018). According to Ba et al. (2019), the majority of HIV cases were between the ages of 24-39, highlighting a crucial demographic for target intervention (Ba et al., 2019). As of 2022, according to the Ghana Aids Commission (GAC), the overall prevalence rate in Ghana was 1.6% (GAC, 2022). This figure reflects a decline from previous years, with notable reductions in new infections and AIDS-related deaths compared to early 2000 (Ali et al., 2019).

Like many other regions in Ghana, the Upper East region could not achieve the UNAIDS 90-90-90 target by 2020 (Ansah et al., 2021). The Upper East regional prevalence rate was 0.87%, below the national rate of 1.66%; the Bolgatanga Municipality prevalence rate was 1.74% with an infection rate of 7,953, being the highest among the five (5) northern regions of Ghana, of which the northern region places second with an infection rate of 6,941, and the Upper West region comes third with an HIV population of 5,725. In contrast, Savannah and northeast regions place fourth and fifth with figures 3,135 and 2,122, respectively (GAC, 2022). The HIV prevalence in Bolgatanga has shown fluctuations over the years; in 2019, it was recorded at 3.6%, which decreased to 2.6% in 2020 and further decreased to 1.74% in 2022 but remains higher than the national average of 1.66% (GAC, 2022).

2.2 Risky Sexual Behaviour Influencing HIV Transmission Among Heterosexual Males

High-risk sexual practices (HRSP) include behaviours that increase an individual's risk of contracting sexually transmitted infections and experiencing psychological problems along with related consequences (Motuma et al., 2016). Risky sexual behaviours, including inconsistent condom use, multiple partners, and engagement in transactional sex, are significant contributors to the spread of HIV in Ghana. Manu et al. (2022) highlighted that young males often engage in risky sexual practices, which is intensified by a lack of comprehensive sexual education and awareness about HIV transmission (Manu et al., 2022). The reluctance of men to seek HIV testing and treatment services has been documented, indicating a gap in preventive health behaviours (Abubakari et al., 2021). Despite considerable efforts to identify simple interventions that can reduce risky sexual behaviour, behaviour change remains a

complex challenge. Although many young people have access to information about HIV/AIDS from various sources, the challenge lies in effecting behavioural change (WHO, 2023).

2.2.1 Condom Use and HIV Transmission

Condom use remains a vital tool in the fight against HIV. In sub–Saharan Africa, HIV remains the leading cause of morbidity and mortality among young people, and the predominant mode of transmission is condomless sexual intercourse and multiple sexual partners (AVERT, 2022). Not only are condoms highly effective in preventing HIV transmission, they provide cost-effective dual protection against STIs. As a result, donor programmes and the international AIDS community strongly advocate for promoting condom use in countries with high rates of HIV prevalence (Grabor, 2017). Several factors influence the ability to negotiate a condom in a sexual relationship. In sub-Saharan Africa, a pooled prevalence of incontinence condom use was 53% among college and university students (Lungu et al., 2022). On the other hand, the prevalence of current condom non-use behaviours was 59.8% among young people (Sewanyana et al., 2018).

Condom use is an essential tool in the fight against the spread of HIV/STI; a genuinely effective protection usefully requires condom use at every sexual encounter. Studies have revealed that although youths are engaged in risky sexual behaviour, they are not using condoms consistently, making the fight against HIV a challenging one (Amon et al., 2011; Agardh et al., 2011). In Bolgatanga, cultural norms significantly influence condom use behaviour. Societal perceptions of masculinity often discourage men from using condoms because they can be viewed as signs of distrust towards their partners.

The cultural stigma surrounding condom use contributes to higher rates of HIV transmission among heterosexual males (Otero et al., 2022). A study conducted by (Manu et al., 2022) revealed that young people engage in risky sexual behaviours, with the majority engaging in unprotected sex. A similar study in Greater Accra confirmed that condom use among young people was inadequate (Asare et al., 2020). Research has indicated that factors such as education level, employment status, having multiple sexual partners, age, geographical location, cohabitation with a partner, and marital status are significantly correlated with condom use (Felisbino-Mendes et al., 2021; Putra et al., 2021).

The lack of awareness of males on their HIV status inadvertently poses a risk of transmitting the virus to their sexual partners (Okafor et al., 2018). In the case of stigmatisation (Santelli et al., 2015), asserted that the presence of stigma and discrimination related to HIV/AIDS acts as a deterrent for men in their pursuit of testing, treatment and access to support services. The apprehension of experiencing social rejection or isolation can prevent individuals from taking necessary preventive measures (Jose et al., 2021). Adherence to conventional gender norms and societal expectations regarding masculinity serves as a deterrent for specific individuals of the male gender to actively pursue knowledge on HIV/AIDS or participate in preventive measures. Consequently, The misguided belief in one's invulnerability diminishes recognising potential risks associated with the disease (Jose et al., 2021); a similar study by Kalichman et al. (2020) asserted that while overall condom use might be high, engagement in multiple sexual partnerships and unprotected sex with steady partners increase the risk of HIV transmission (Kalichman et al., 2020). Manu et al. (2022) found that 68% of young men do not make use of condoms during their last sexual

encounter. Additionally, the same study asserted that 87% of young men also do not undergo HIV testing. The (AOR) for young men was 3.38(95% [CI] 1.18-9.64). The study also demonstrated that the rate of condom use among sexually active young people was low (Manu et al., 2022)

2.2.2 Alcohol/Substance Consumption and HIV Transmission

Alcohol consumption is linked to disinhibition, which may increase the likelihood of engaging in risky sexual behaviours (Wray et al., 2019). Research by (Khumalo et al., 2020) revealed that alcohol consumption contributes to risky sexual behaviours, as participants reported engaging in unprotected sex and inconsistent condom use while intoxicated. Another study reported that alcohol consumption is recognised as a risk factor for HIV infection due to its impact on inconsistent use of preventive methods like condoms, diminished capacity or inclination to insist on condom use with a reluctant partner, and reduced awareness of the potential adverse outcomes of unprotected sex (Wray et al., 2019).

A systematic review by (Scott-Sheldon et al., 2016), who examined the impact of alcohol on the intention to engage in unprotected sex, found that individuals who consumed alcohol were less inclined to employ communication and sexual negotiation skills. Another study conducted to determine the correlation between alcohol consumption and risky sexual behaviour confirms that individuals who consumed alcohol prior to sexual activity were less likely to use condoms, suggesting that alcohol consumption is a significant predator of inconsistent condom use among people living with HIV/AIDS (Gerbi et al., 2009). Additionally, the research explored the correlation between gender-specific prevalence and alcohol use before sex; the finding further

indicates that men were significantly more likely than women to consume alcohol before engaging in sexual activity than women (36.7%) vs. (23.5%), respectively (Gerbi et al., 2009).

According to Choudhry et al. (2014), a significant correlation between alcohol consumption and multiple sexual partners has been observed among both men and women. Men who consumed alcohol prior to sexual activity were more likely to engage in inconsistent condom use. Similarly, women who regularly drank alcohol before sex were found to be twice as likely to practice inconsistent condom use with new partners (Choudhry et al., 2014). A study conducted in South Africa on the prevalence and risk factors of HIV infection among heterosexual men found that lack of condom use during the first sexual encounter was linked to an increased risk of HIV infection (AOR=1.43) (Ntombela et al., 2021). A study on the sociodemographic and behavioural factors associated with HIV vulnerability according to sexual orientation found that alcohol consumption can influence unprotected sex, as it may lead men to engage with multiple sexual partners without the use of condoms (Serra et al., 2020).

The use of substances may be motivated by a desire to enhance sexual performance and experience or reduce anxiety related to sexual performance, which can lead to poor decision-making regarding safe sex practices(Sandfort et al., 2017). The intersection of substance uses and sexual behaviour is particularly pronounced among men who have sex with men, but similar dynamics have been observed in heterosexual contexts. Substance use can intensify stigma and increase vulnerability to HIV (Bello et al., 2017; Sandfort et al., 2017). Also, according to research, individuals who consume

alcohol tend to engage in premarital sexual intercourse at a younger age than those who do not consume alcohol (Abate et al., 2020).

A study conducted in South Africa titled the Prevalence and Risk Factors for HIV Infection among heterosexual men found that alcohol consumption and drug use were significant risk factors, with (AOR=1.63 and 1.37) respectively (Ntombela et al., 2021). Substance use can impair judgement and lead to risky sexual practices. Some cultural attitudes in Ghana normalise the consumption of alcohol in social settings, contributing to increased sexual risk behaviours among men (Sandfort et al., 2017). The mindset among men is that moderate alcohol consumption boosts sexual desire due to increased testosterone, and excessive drinking leads to outcomes including risky sexual behaviour like condomless sex (Santos-Longhurst, 2019). Several studies have established a link between hookup culture and substance use, with many students reporting that their hookups often happen following alcohol consumption (Garcia et al., 2012; Lewis et al., 2012).

A quantitative study that utilised a sample size of 505 heterosexual men titled “Sex under the influence of drugs or alcohol: common for men in substance treatment and associated with hazardous sexual behaviour’ asserted that a significant proportion of men in substance abuse treatment reported engaging in sex under the influence of alcohol (Calsyn et al., 2010). Olopaade (2022) states that drugs can alter libido and affect physical arousal, leading to both enhanced and impaired sexual experiences (Olopaade, 2022). It emphasises that while some individuals may perceive drugs as sexual encounters, it can also lead to negative consequences such as increased risk-taking and the potential for coercive situations (Olopaade, 2022). The consumption of

alcohol or drugs during the first sexual experience is more likely to lead to engaging in risky sexual behaviour later on, including multiple partners. This supports the idea that early substance use can lead to patterns of risky behaviour in sexual contexts (Ghandour et al., 2014).

A comprehensive meta-analysis reviewed 50 studies involving adolescents and young adults reveals that alcohol consumption is significantly associated with early sexual initiation, inconsistent condom use, and having multiple sexual partners. However, it suggests that the relationship is influenced by various factors, including demographic variables and individual behaviour patterns, indicating that not all alcohol consumption leads to risky sexual practices (Cho & Yang, 2023). According to Choudhry et al. (2014), not all instances of drinking led to unsafe sex practices (Choudhry et al., 2014). Findings point to alcohol consumption as a recognised depressant of the central nervous system; moderate consumption may enhance sexual desire and reduce sexual anxiety, potentially improving erectile function (Allen & Walter, 2018). Although many individuals and literature revealed that alcohol enhances sexual arousal and performance, this belief does not consistently translate into higher rates of HIV infection when controlling for other factors (Gerbi et al., 2009).

2.2.3 Multiple Sexual Partners and HIV Transmission

Research conducted in Botswana found that a substantial proportion of individuals with HIV have multiple sexual partners; this revealed that those with multiple partners were less likely to disclose their HIV status and had inconsistent condom use, which significantly amplified their risk of transmitting HIV to uninfected partners (Kalichman et al., 2020). Similarly, a study focusing on adolescent boys and young men in Ghana

reported a prevalence of multiple sexual partnerships of 28.1%, with factors such as age, wealth, and education influencing these behaviours. This finding suggests that young men who engage in multiple partnerships are at a higher risk of HIV, emphasising the need for target intervention (Yeboah et al., 2022). The risk of acquiring HIV through multiple sexual partners is particularly pronounced in populations with high rates of concurrency, where individuals may have overlapping sexual relationships, facilitating rapid transmission during the acute phase of infection (Currie et al., 2019).

Engaging in condomless sexual intercourse with an HIV-positive partner is a primary risk factor for transmission. Studies have shown that even in serodiscordant couples, the absence of condoms significantly increases the risk of HIV transmission, particularly if the positive partner does not have an undetectable viral load (Rodger et al., 2019; Pebody, 2019).

A study on recent sexual partners and HIV transmission risk among people living with HIV/AIDS in Botswana indicated that condom use is significantly more likely to be 100% with steady partners of individuals who report having only one partner, which reduces the risk of HIV transmission.(Kalichman et al., 2007). Furthermore, individuals in monogamous relationships may be more likely to disclose their HIV status, facilitating safer sexual practices (Kalichman et al., 2020).

A study conducted by Thielman (2008) found that 19% of women reporting monogamous relationships were HIV-positive, compared to only 4% of men in similar relationships. This discrepancy highlights that even within monogamous partnerships, women may be at greater risk due to male partners who may have other sexual partners

or undisclosed HIV status (Thielman, 2008). Additionally, the study indicated that factors such as poverty, education level, and power dynamics within relationships can influence women's ability to negotiate safer sex practices. Women who are economically disadvantaged or less educated find it challenging to insist on condom use or question their partner's fidelity, increasing their vulnerability to HIV infection even in monogamous settings (Thielman, 2008). Also, individuals in monogamous relationships might assume their partner is faithful without verifying their status or behaviour, which can lead to unexpected exposure to HIV (Kenyon et al., 2016).

2.2.4 Transactional Sex and HIV Transmission

Transactional sex involves the exchange of sexual acts for money, gifts, or other material benefits. This practice is distinct from formal sex work and often occurs in the context of romantic relationships where material exchange plays a role in sustaining the relationship (Kilburn et al., 2018). On the issue of transactional sex, a study conducted on transactional sex and HIV risks in Uganda found that 5.2% of young men reported paying for sex, whereas a significant number engaged in multiple concurrent sexual partnerships, which are known to increase HIV risk (Choudhry et al., 2015). Another study analysing data from the Uganda AIDS Indicator revealed that young men who paid for sex were more likely to have multiple sexual partners and experience sexual coercion, both of which are associated with higher HIV prevalence (Berg et al., 2019).

Additionally, transactional sex often correlates with lower educational attainment and increased substance use, further compounding the risk factors for HIV infection (Berg et al., 2019). A systematic review and meta-analysis encompassing 33 studies across 17 countries found that men who participated in transactional sex exhibited a higher HIV prevalence than those who did not, with an overall odd ratio of 1.3 (95% CI 1.11-62).

Notably, significant associations were observed in Latin America (OR=2.28) and sub-Saharan Africa (OR=1.72) (Choudhry et al., 2015a).

Studies have asserted that masculinity among males in sub-Saharan Africa is anchored in societal expectations that equate manhood with the role of a provider in sexual relationships and the pursuit of multiple partners (Chen et al., 2007; Dunkle et al., 2007), another study found that the understanding and upbringing of males in a broader context that men are supposed to provide in relationships proof of masculinity makes men indulge in transactional sex (Stephenson et al., 2013). Lower educational levels among men are associated with a higher likelihood of engaging in transactional sex. Specifically, individuals who did not complete high school were more prone to participate in these activities, even when controlling for various factors such as age and income (Stevens et al., 2017). The study further found that those with higher average educational levels tend to foster an environment that discourages risky sexual practices, while those with lower educational attainment normalise such behaviours (Stevens et al., 2017).

According to the Alliance for Reproductive Health Rights (ARHR) (2024) found that low educational attainment can hinder access to information about safe sexual practices. Men with limited education lack awareness of the risks associated with transactional sex, including sexually transmitted (STI) infections and HIV (ARHR, 2024).

2.2.5 Age at First Sexual Intercourse Among Heterosexual Males

Early sexual deception refers to the first sexual intercourse at or before the age of 15 (Howard, 2021). (Abate et al., 2020; Seff et al., 2021) also describes early sexual deception or initiation as the first sexual encounter before turning 15 years of age, whether male or female. In sub-Saharan Africa, categorised as Eastern and Southern Africa, 23 of 24 countries reported a decline in the incidence of sex before the age of 15 years. These declines ranged from 8% in Mali from 1995 to 2013 to 47% in Uganda from 1995 to 2016 (ICF, 2017). Research findings reveal a distinct trend: that early initiation of sexual activity is linked with various risk factors, increasing the likelihood of HIV infection. Individuals who engage in sexual activity at an early age were notably less informed about HIV (Shrestha et al., 2016). A study conducted by (Seff et al., 2021) indicated that gender norms significantly influence the timing of sexual initiation and subsequent sexual activities in boys and men.

Programmes could employ social norm theory and strategies to alter men's perceptions of their peers' actions and the expectations placed on their own behaviour and expressions of masculinity. Findings from the same study also found that unemployed youth are nearly twice as likely to engage in early sexual initiation as their employed peers (Abate et al., 2020). A recent study focusing on sub-Saharan Africa has shown that the median age at first sexual intercourse has increased over time among individuals reaching adulthood between 1985 and 2012. Specifically, age increased from 17.1 to 18.7 years for men and 17.6 to 19.1 years for women (Nguyen et al., 2023). Early sexual initiation is associated with increased HIV vulnerability among young people in sub-Saharan Africa. According to a study conducted on high school students in Moshi, Tanzania, over 80% had their sexual debut before the age of 18, and

21.6% had their first experience before the age of 15 (Omanga et al., 2023). Additionally, a study conducted in Ghana (Amo-Adjei & Tuoyire, 2018) found that early sexual debut is not always directly linked to higher HIV prevalence but is often associated with other risky behaviours that increase the risk of HIV. A similar study conducted in Bolgatanga by (Apanga et al., 2020) found that although early sexual initiation is concerning, other factors, such as multiple sexual partnerships, play more critical roles in HIV transmission.

2.3 Sociocultural Factors Influencing HIV Transmission Among Heterosexual Men

This review explores sociocultural factors such as early marriage, polygamy, community, family and peer influence, and traditional practices like wife and widow inheritance, masculinity among heterosexual males and their impact on HIV transmission. By focusing on Sub-Saharan Africa, the Ghanaian context, with particular attention to the Upper East region, this review aims to deepen understanding of how deeply ingrained cultural practices and social structures contribute to the persistence of HIV. The factors discussed here highlight individual behaviours and reflect more significant societal trends and cultural norms.

Bolgatanga is characterised by unique sociocultural dynamics that significantly impact HIV in Ghana, which stands at 1.74%; Bolgatanga's traditional lifestyle has contributed to the localised pockets of higher transmission (GAC, 2022). In this region, traditional practices such as polygamy, wife and widow inheritance, and early marriage, combined with gender imbalance and inadequate access to sexual health education, create an environment ripe for the spread of HIV. The influence of traditional conceptions of

masculinity and gender roles influences male perceptions of illness, whereby seeking information or engaging in preventive behaviours is perceived as a display of vulnerability (He et al., 2017).

Cultural factors significantly influence the increase and decrease of HIV risk; they affect the availability of protective behaviour options and the underlying beliefs that guide individual decisions regarding risky and protective health behaviour (Freudenberg, 2000; Ordóñez & Marconi, 2012). Sociocultural factors play a crucial role in HIV transmission. Understanding these factors can help design effective interventions to reduce the spread of the virus (Tenkorang, 2014). According to (Petit Vincent, 2023; USAIDS, 2021), a social norm is an informal set of rules that defines acceptable and appropriate actions within a given group or community and guides human behaviour. Social norms comprise our perceptions of others' actions and beliefs about what others approve of or expect. Thus, they exist at the interception of behaviours, beliefs, and expectations (Social et al., 2021).

The relationship between culture and sexual behaviour is highly contested. Studies (Khumalo et al., 2020; Juma et al., 2014) have indicated that specific cultural norms shape certain sexual behaviours. Social norms are learned and adopted very early, often during infancy. They are reinforced by social sanctions, which are 'punishment' for non-compliance and social benefits, which are 'rewards' for compliance. A social norm is established when individuals engage in behaviour because they perceive that others in the community also engage in it (descriptive norms) or because they believe that people important to them approve of the behaviour. Therefore, understanding the context in which behaviours are developed and moulded. Consequently, understanding

the context of socialisation provides deeper insight into the reasons behind individuals' actions and behaviour (Graaff & Heinecken, 2017; Gibbs et al., 2018).

2.3.1 Early Marriage

Early marriage, defined as marriage before age 18, is a common practice in many cultures, according to (UNICEF, 2021). In Ghana, cultural norms may explain child marriage, the value placed on childbearing, betrothal, and religious beliefs (Amoadu et al., 2022). Approximately 21% of young women worldwide are married before age 18. The prevalence of early marriage is exceptionally high in regions such as sub-Saharan Africa and South Asia, where cultural, economic, and social factors drive early marriage.

Early marriages influence HIV transmission through several mechanisms (Terefe et al., 2024). In many Sub-Saharan African societies, early marriage is culturally entrenched. Young women often marry significantly older men, which increases their vulnerability to HIV. Studies indicate that these older partners have had multiple sexual partners, raising the risk of HIV transmission within the marriage (Nabukenya et al., 2020; Akinrinola et al., 2004).

Young women are often married to significantly older men, increasing their risk of HIV exposure. Research indicates that husbands of married adolescent girls are approximately three times more likely to be HIV-positive than the boyfriends of single girls, suggesting that early marriage can lead to increased vulnerability to infection due to unprotected sex with partners who have higher rates of HIV (Melesse et al., 2020). Gender dynamics play a crucial role in the transmission of HIV among married

couples. Women in these unions frequently face power imbalances that inhibit their ability to demand safe sex practices.

2.3.2 The Inheritance of Wives and Widows

Inheritance of wives is common in various sub-Saharan African regions, including Kenya, Ghana, Nigeria, and some parts of southern Africa (Tenkorang, 2014). In ancient societies, particularly in the ancient Near East, levirate marriage was essential for ensuring the continuity of family lineage and inheritance. Particularly among the people of Luo in Kenya, widow inheritance is seen as a way to provide social and economic security for widows (Agot et al., 2010). A study conducted in Bondo District, Kanya, found that widow inheritance is a significant risk factor for HIV transmission. Widows inherited by non-relatives for sexual rituals were more likely to be HIV positive (Agot, et al., 2010).

Cultural expectations surrounding widowhood complicate efforts to implement HIV prevention strategies. In other words, many widows face pressure to comply with traditional practices, which include rituals that do not allow for the use of condoms. This cultural context makes it challenging for widows to negotiate safer sex practices, thereby increasing their vulnerability to HIV (Lopman et al., 2009). Additionally, the dynamics of inheritance relationships often involve multiple concurrent sexual partnerships, further elevating the risk of HIV transmission not only to the widows but to their partners and other long-term relationships (Lopman et al., 2009; Perry et al., 2014). The practice often involves sexual cleansing rituals where the widows engage in unprotected sex with inheritors, increasing their vulnerability to HIV infection (Perry et al., 2014). A broader study across sub-Saharan countries highlights similar trends,

showing that widowhood and wives' inheritance practices contribute significantly to HIV risk among men (Tenkorang, 2014). Another study conducted in Zimbabwe revealed that the prevalence of HIV among widows and widowers was exceptionally high, with rates of 61% among widows and 54% among widowers (men).

2.3.3 Cultural Acceptance of Having Multiple Sexual Partners as an Indicator of Strength or Masculinity

Cultural norms play a crucial role in shaping behaviours and attitudes towards masculinity. Masculine norms are a component of gender norms and consist of the socially prescribed rules, roles, and behaviours associated with men and manhood across different cultures. These norms intersect with other aspects of identity, such as ethnicity and socioeconomic status, leading to diverse manifestations of masculinity in specific contexts (Ragonese et al., 2019). A study conducted among young black students at the University of Kwazulu-Natal, South Africa, revealed that young men often adhere to prescribed gender norms, which include having multiple sexual partners as a demonstration of masculinity (Khumalo et al., 2020). In the African context, having multiple sexual partners is often seen as a sign of strength, virility and social status among men. Young men are socialised to believe that sexual prowess equates to manhood, leading to normalised risk-taking behaviours such as unprotected sex or engaging with multiple partners (Khumalo et al., 2020).

Some traditional views may discourage multiple partnerships, creating a conflict for young men torn between familial expectations and peer norms (Khumalo et al., 2021). This behaviour is reinforced by socialisation agents such as family, peers and community. A study titled Psychology of Sexual and gender diversity in the 21st

Century: Social Technologies and Stories of Authenticity highlighted the evolving understanding of gender and sexuality in the 21st century. It discusses how traditional notions of masculinity, including the acceptance of multiple sexual partners, are being challenged by new narratives of gender and sexual diversity (Hammack et al., 2024).

The study emphasises the importance of authenticity and self-authorship in shaping modern sexual behaviours. Masculine ideas that promote the notion of uncontrollable male sexual needs, multiple sexual partners as signs of sexual prowess, and dominance over women, both physically and sexually, increase the risk of HIV infection in both young men and women (Jewkes et al., 2015). A study by Larsson et al. (2022) noted that society often criticises and judges adolescent girls for engaging in early sexual activity, while it accepts and even encourages adolescent boys to initiate sex at an early age as proof of their masculinity and sexual orientation to (Larsson et al., 2022). In countries like Sweden, Norway, and Denmark, there is a strong emphasis on gender equity and individual autonomy. Where having multiple partners does not carry the same connotation of masculinity; instead, the focus is on mutual consent and respect among all parties involved (Vladimir, 2024). As societal norms evolve and gender roles become more fluid, the perception of relationships continues to change, allowing for a broader understanding of intimacy that transcends the traditional notion of masculinity. Many individuals prioritise emotional connections over traditional notions of masculinity linked to sexual conquests (Thomas, 2019).

2.3.4 Polygamy and Multiple Sexual Partners

Polygamy, particularly polygyny (one man having multiple wives), is a culturally accepted practice in many parts of Ghana and Sub-Saharan Africa. This marital structure is deeply rooted in traditional and religious beliefs, and it continues to be

prevalent despite the modern legal frameworks that often promote monogamous marriages. A study by Renier and Tfaily (2012) in Malawi found a significant association between polygamy and higher HIV prevalence (Renier & Tfaily, 2012). Similarly, a study explores how polygamous relationships and migration patterns influence HIV transmission in South Africa, emphasising the role of multiple sexual partners in increasing HIV risk (Tenkorang, 2023). Eaton et al. (2014), on trends in concurrency, polygyny, and multiple-sex partnership, asserted that polygyny is culturally embedded in various societies across Sub-Saharan Africa and is often linked to status, wealth, and social structures. In those communities, having multiple wives is seen as a sign of prosperity and is socially sanctioned (Eaton et al., 2014). This cultural backdrop creates an environment where polygamous marriages are common and accepted, impacting sexual networks and behaviour (Bechtel, 2016). It is worth noting that economic factors also influence men to seek multiple wives to enhance their labour force or secure social alliances. However, economic constraints can affect the ability to maintain multiple households, leading to fluctuations in the prevalence of polygyny over time (Eaton et al., 2014). While some studies suggest that polygyny may stabilise sexual networks compared to informal concurrent partnerships, others indicate that it can still contribute to higher rates of HIV transmission due to increased extramarital sexual activities. A study carried out in Zimbabwe revealed that while overall partnership numbers declined during a period of reduced HIV prevalence, polygamous relationships remained unstable and associated with a higher rate of casual sex partnerships (Eaton et al., 2014; Damtie et al., 2021). A systematic review found that polygyny amplifies risky sexual behaviours, such as networking and concurrent sexual partnerships, which are significantly associated with the risk of HIV transmission (Gazimbi et al., 2020).

2.3.5 Community, Family and Peers Influence on Heterosexual Males' Decision-Making Regarding Sexual Behaviour.

The influence of family, community and peers on sexual behaviour is a critical area of research, particularly in the context of public health and HIV transmission. Families are often the first socialising agents, instilling fundamental beliefs and moral codes that guide decision-making throughout life. Parental expectations and support play a vital in shaping adolescent attitudes towards sexual behaviours (Guo, 2014). Parental monitoring of children's activities correlates with reduced risky sexual behaviours (Wetherill et al., 2010). Conversely, diminished parental involvement has been linked to increased involvement in deviant peer groups and higher rates of sexual activity (Wetherill et al., 2010).

This suggests that a supportive family environment can act as a protective factor against risky sexual behaviours. Adolescents from single-parent families are more likely to experience early sexual initiation and higher rates of unprotected sex (Mmari et al., 2016). The absence of one or both parents can lead to a lack of supervision and guidance, increasing vulnerability to peer pressure and risky sexual activity.

Additionally, families that foster discussions about sexuality provide their children with essential information that can help them make informed decisions (Wamoyi et al., 2015). When parents express their expectations and values regarding sexual behaviour, it significantly influences their children's choices (Wetherill et al., 2010). Additionally, parental acceptance correlates with lower HIV risk behaviours while rejection can lead leads to increased risk, including higher rates of sexual activity (Barnett et al., 2023). Males who grow up in a nurturing atmosphere that promotes self-esteem and emotional

stability allow young males to develop healthy interpersonal skills necessary for negotiating sexual relationships (Wamoyi et al., 2015).

A hostile or neglectful family environment leads to low self-esteem and poor decision-making regarding sexual encounters. (Kaufman-Parks et al., 2023). Adolescents in environments with better educational opportunities and food security demonstrate lower probabilities of engaging in high-risk sexual activities such as multiple partnerships and transactional sex (Rudgard et al., 2023). Also, boys who witness positive relationship models in their families are more likely to engage in respectful and equitable partnerships as they mature(Wamoyi et al., 2015). Conversely, exposure to negative behaviours, such as domestic violence and unhealthy relationship dynamics, perpetuate cycles of abusive behaviours in future relationships (Kaufman-Parks et al., 2023)

Peer groups allow adolescents to explore their identities and challenge familial beliefs (Guo, 2014). This exploration is crucial for developing independent decision-making skills but can lead to conflicting values between family teaching and peer expectations. A sense of belonging within peer groups is essential for adolescents. Being accepted by peers reinforces certain behaviours, including sexual activity, which may increase the risk of STIs, including HIV (Putri et al., 2023). Peer pressure leads to risky behaviours, while supportive peer relationships encourage safer practices (Putri et al., 2023). Peer groups often establish norms that dictate acceptable behaviours, leading individuals to conform to group expectations (Gardner & Steinberg, 2005). This results in both positive outcomes, such as increased engagement in prosocial activities, and adverse

outcomes, such as participation in risky behaviours like non-condom use, increasing their vulnerability to HIV (Ciranka & van den Bos, 2019).

2.4 Sociodemographic Predictors of HIV Transmission Among Heterosexual Males

The transmission of HIV among heterosexual males is influenced not only by sociocultural factors and risky sexual behaviours but also by various sociodemographic characteristics. These predictors include age, marital status, educational level, income, and occupation. Exploring these variables would provide a deep understanding of how populations are affected by HIV and assist in tailoring interventions more effectively.

2.4.1 Marital Status

According to the South Africa National Prevalence of HIV, Incidence and Behaviour Survey, 2012, by Shisana et al. (2015), marriage is often perceived as a safeguard against the transmission of STIs and HIV. Nevertheless, the survey report asserted that new HIV infections are more prevalent among married and cohabiting couples, with 80% of new infections in sub–Saharan Africa occurring in married women (Shisana et al., 2015). On the contrary, a study found that individuals who were married and living with their spouses had significantly reduced odds of being HIV positive compared to unmarried individuals. The HIV incidence was only 0.27% among married individuals, while it was much higher (2.91) among cohabiting individuals who were not married (Shisana et al., 2016).

Similarly, cohabiting individuals were found to have higher HIV incidence rates than married individuals, likely due to the increased likelihood of having multiple sexual

partners and lower levels of sexual exclusivity associated with non-marital relationships (Shisana et al., 2016). Trends have been observed in other regions, such as Uganda and Cameroon, where married individuals also exhibited lower HIV prevalence compared to unmarried populations, suggesting a broader pattern across various hyperendemic settings where marital status significantly impacts HIV risk (Shisana et al., 2016; Srikrishnan et al., 2022). Additionally, the practice of having multiple sexual partners is more common among single individuals, which is associated with higher susceptibility to sexually transmitted infections, including HIV (Currie et al., 2019).

2.4.2 Education Level

Cultural constructs surrounding youth can shape their sexual experiences, and this has significant consequences for developing coping mechanisms and protective factors against risky sexual behaviours (Liang et al., 2019). Evidence from the early 1990s indicates that higher education levels are correlated with greater HIV prevalence; however, as time goes by, evidence suggests that better-educated populations respond more effectively than their less-educated counterparts by adopting protective measures and altering risky sexual behaviours (de Walque, 2007). Another study titled Predictors of Human Immunodeficiency Virus and high-risk sexual Behaviours among Unmarried Women by (Ssentongo et al., 2018) asserted that multiple sexual partners were more common among individuals with secondary education or below than among those with higher education.

2.4.3 Age

Research indicates that HIV prevalence among heterosexual men tends to increase with age; from 2018 to 2022, there has been a notable decline in new HIV infections overall;

however, the dynamics vary by age group. Although there was a 30% decrease in infections among individuals aged 13 to 24, the most significant number of new infections occurred among those aged 25 to 34 (CDC, 2024; HIV Statistics overview, 2024). This indicates that although younger populations may benefit from targeted prevention measures, older men represent a significant proportion of new infections. Similarly, in Ghana, a population-based study by Ba et al. (2019) reported that among men aged 15-45 years, the proportion of HIV-positive individuals increased with age. Specifically, men aged 35-49 (6.67% for ages 15-24) (Ba et al., 2019). Another study conducted in South Africa on the prevalence and risk factors of HIV infection among heterosexual men found that the median age of the participants was 25 years, with an overall HIV prevalence of 15.5%. Notably, men aged 25 years and older had significantly higher odds ratio (AOR=4.82) for HIV infection than younger men (Ntombela et al., 2021). This trend suggests that older men may engage in riskier sexual behaviour or have accumulated more exposure over time.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the techniques used to address the research questions. The focus was on the research design, the study's geographical location, the sample size, the variables addressed in this study, the instrument used for data collection, the data collection techniques, and the data analysis methodologies.

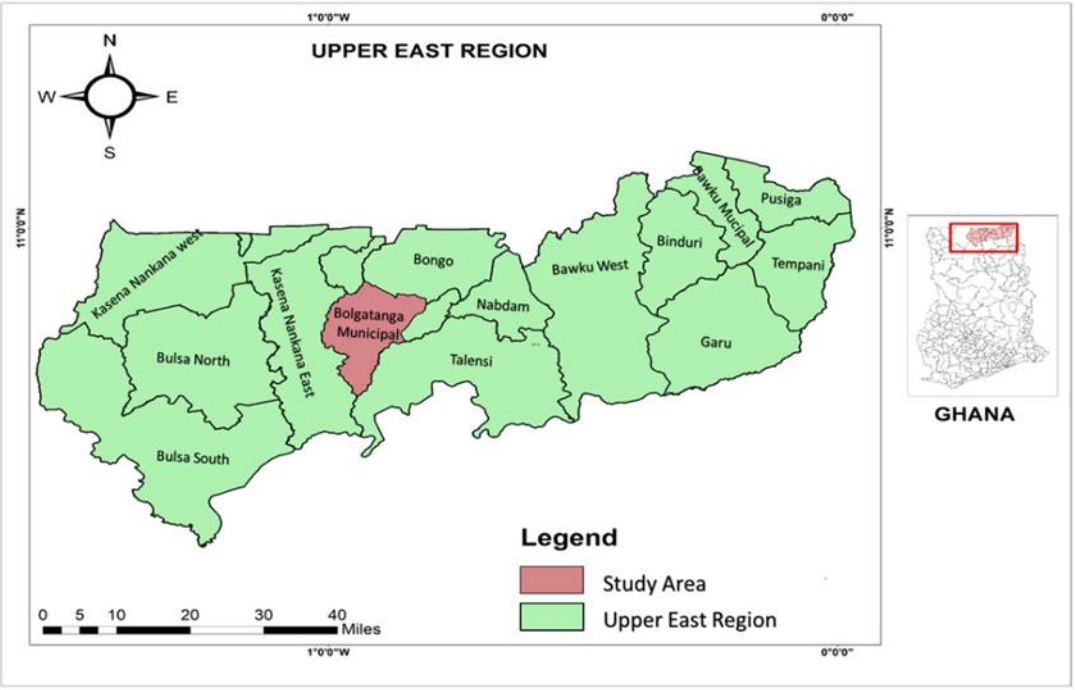
3.1 Study Area and Population

The study was conducted in the Bolgatanga Municipality of the Upper East Region of Ghana. It has a total area land of 729 km². The Bongo District borders it to the north, the Talensi and Nabdam Districts to the south and east, and the Kassena-nankana District to the west. It lies in the centre of the Upper East Region, approximately between the north latitude 10°30' and the north latitude 10°50' and the longitudes 0°30' and 1°00' west latitude. The urban population of Bolgatanga was 139,864 at the end of 2021, with 66,607 males and 73,257 females accounting for 47.4% and 52.6% of the population, respectively, with a population density of 428.9/km² (GAC. 2022).

The municipality is served by thirty-three (33) health facilities, consisting of three (3) hospitals, six (6) health centres, six (6) clinics, two (2) maternity homes, fourteen (14) functional CHPS zones with structures, and twenty-four (24) CHPS without structures in the various sub-districts (GHS, 2023). The Municipality has one of the highest HIV prevalence rates (1.74%) among the 15 sub-districts and municipalities in the region (GHS 2022). The three primary industries are agriculture, including hunting and forestry, wholesale and retail trade, and manufacturing. According to the Bolgatanga Medium Term Development Plan (MTDP) for 2018, agriculture is the leading industry,

with a share of 51.6% in Bolgatanga and 85.3% in the Bawku West District (MTDP, 2018).

Figure 1: A map showing the location of the study site



Source: Researcher's construct

3.2 Study Design

A cross-sectional study design was used to assess sociocultural factors and risky sexual behaviours that predict HIV transmission among heterosexual males aged 18–64 years in Bolgatanga, in the upper east region of Ghana. The choice of a cross-sectional design in this study was to provide the researcher with the opportunity to access and analyse primary data to explain the relationship between sociocultural factors and risky sexual behaviour influencing HIV transmission at any given time (Tillman et al., 2011). The benefits of this study design include high validity, generalizability, and reliability (Tillman et al., 2011). The study compared variables using numerical values and basic statistical analysis (Haneef, 2013).

3.3 Study Population

This research focused on a cohort of permanent residents of Bolgatanga who identified as heterosexual males aged 18–64.

3.4 Study Variables

3.4.1 Dependent Variables

The dependent variable in this study was HIV.

3.4.2 Independent Variable

In this study, the independent variables were sociocultural factors (including taboos, masculinity, norms, beliefs, and social influence) and risky sexual behaviour (including the number of sexual partners, condom use, early sex, alcohol/drug use)

3.4.3 Covariates

Other characteristics considered in the study include age, education level, gender, marital status, and occupational status. These variables are fascinating because they can influence men's behaviour and be a risk or protective factor.

3.5 Sample Size Estimation

The Slovin sample determination formula was used to determine the sample size (Ellen, 2020), n=N(1+Ne2), where (N) is the total population of males between the ages of 18 and 64, estimated to be 66,607, (e) is the margin of error, chosen to be 5%, and an attrition rate of 25% to compensate for non-response. The sample size for the current study was obtained.

$$n = \frac{N}{1 + N(e^2)}$$

$$n = \frac{66607}{1 + 66607(0.05^2)}$$

397.612

≈ 398

To compensate for non-response, an attrition rate of 25% of the calculated sample size, which was 100, approximated to the nearest whole number, yielded a total sample size of 498. For convenience, a sample size of 500, distributed equally across the five selected communities within the municipality, was chosen for the study.

3.6 Sampling and Sampling Procedure

3.6.1 Sampling Techniques

The study used a multistage sampling technique to obtain a sample of 500 males aged 18-64 from Bolgatanga municipality. The multistage approach ensured a comprehensive and representative selection of communities and respondents, allowing for a focused study on males aged 18-64 while considering the diverse characteristics and settings within Bolgatanga. In cluster sampling, the study population was divided geographically into 10 groups. Then, some groups are randomly selected, and a sample is drawn for each cluster. Because the communities have homogeneous characteristics, this study employed a multi-stage sampling technique to select the administrative communities within Bolgatanga Municipality. This stage included four phases: random sampling, systematic sampling, stratified sampling, and simple random sampling.

3.6.2 Community Selection

The names of the ten (10) administrative communities thus,Yorogo, Tindonsobulugu, Tindonmolo. Daporetindongo, Yarigabisi, Tanzui, Bolga-soe Bukare, Yikine, Sumbrungu, Zaare were written on paper, folded, and placed in separate containers. Five individuals who were not a part of the study were asked to pick one of the folded papers one after the other without replacement. The five selected communities (Tanzui, Bolga-soe Bukare, Yikine, Sumbrungu and Bolga-soe) were included in the study. Hence, samples were drawn randomly from five (5) out of the ten communities in the study area.

3.6.3 Selection of Households

A systematic sampling technique was used to select households within five (5) communities. A register containing a comprehensive list of all households in the selected communities was acquired from the Bolgatanga Municipal Assembly. Each household was assigned a unique code until the last household was reached. Then, a quota of 100 households was assigned to each selected community due to the homogeneity of the communities. A systematic sampling technique was used to determine the K^{th} term interval. That is the total number of households (n)/sample size (that is, the quota of 100), ($n/100=K^{th}$ term interval). A random sampling technique was also adopted to select the starting point from the sampling units. Every household at the K^{th} point was considered in this study.

3.6.4 Stratified Sampling

Stratification is a sampling method that involves the division of a population into smaller subgroups known as strata. This study employed stratified sampling to group the target population into age groups: (18-27, 28-37, 38-47, 48-57, 58 -64).

3.6.5 Selection criteria of respondents

Participants in this study were recruited from individual households. In cases where there were several men belonging to different age subgroups in the household, a fair selection process was implemented through a simple random selection technique thus Yes and No were used. Individuals who chose “yes” were considered respondents, whereas those who chose “no” were not recruited. The study includes explicitly men with permanent residence between the ages of 18 and 64 living in Bolgatanga's municipality.

3.6.6 Sampling procedures

3.6.7 Inclusion and exclusion criteria

All eligible participants in the study were male, aged between 18-64, permanent residents of Bolgatanga municipality, willingly volunteered, and of sound mind.

The exclusion criteria for the study were males younger than 18 years and older than 64 years, non-permanent residents of the municipality, and people who were not of sound mind and did not willingly volunteer to participate.

3.7 Data Collection Instrument

A structured questionnaire was used to collect data for this study. The tools developed include sociodemographic characteristics, risky sexual behaviours/practises, and

sociocultural factors. In developing the questionnaire, the words were well defined to minimise misinterpretations of the questions and ensure that each question measured a single idea. (Fowler Jr., 1995). The questionnaire was adapted from the MEASURE DHS programme and the AIDS survey model with some indicators from the guide "National HIV/AIDS Prevention Programs for Young People." (UNAIDS, 2004). Reliability analyses (Folasayo et al., 2017) revealed that it was internally consistent (alpha = .91) and stable over one-week (r = .83), two weeks (r = .91), and twelve weeks (r = .90) intervals. The questionnaire was modified because the original survey was conducted differently from the Ghanaian setting. The questionnaire contained 46 items grouped into three (3) sections [A, B, and C].

Section A contains the sociodemographic characteristics of participants, such as age, gender, marital status, religious affiliation, educational level, and occupational status. Participants responded to these items by ticking or writing their responses in the provided spaces.

Section B: measured sexual behaviours and practices questions were made of 11 questions; a score of 1 was given to "yes" correct responses, while a score of 0 was given to "no" incorrect responses. On the other hand, a score of 1 was assigned to "No" correct responses, and a score of "Yes" corresponded to incorrect responses. For sexual behaviour and practise, a score of 1 was assigned to a positive answer and 0 to a negative answer. The scores were then summed to obtain the overall score for each participant. Sexual behaviour was categorised into 'risky' and 'non-risky' based on the mean score. Those scoring less than the mean scores for sexual behaviour were classified as having 'risky" behaviour, and those scoring equal to or greater than the mean scores were classified as having "non-risky" behaviour.

Section C: Sociocultural determinants comprised 15 questions; a score of 1 was given to "yes" correct responses, while a score of 0 was given to "no" incorrect responses. On the other hand, a score of 1 was assigned to "No" correct responses, and a score of 0 was assigned to "yes" incorrect responses. The scores were then summed to obtain the overall score for each participant. The socio-cultural determinates scores were categorised into ‘negative’ and ‘positive’ based on their mean score. Those scoring less than the mean scores were also classified as having ‘negative” sociocultural practises, and those scoring equal to or greater than the mean scores were also classified as having “positive” sociocultural practises.

3.8 Laboratory Test Methods for HIV

All consented participants were taken through pre and post-counselling for HIV tests as prescribed by the national guidelines (Oti et al., 2016). The initial HIV screening involved eluding blood from filter paper and using the First Response anti-HIV 1 & 2 test (Premier Medical Corporation, India), which detects specific antibodies against HIV-1 AND HIV-2 simultaneously. Subsequently, all samples that tested positive for HIV were confirmed using the Inno-Lia Score HIV-1&II line immunoblot assay (Innogenetics, Belgium) to verify the presence of HIV-1 and HIV2 antibodies. Participants received clinic cards, which provided access to their test results and ensured they could obtain necessary follow-up care. This approach is to ensure continuity in healthcare and support for individuals undergoing HIV testing.

3.9 Validity and Reliability

The questionnaire was developed to meet the current study’s requirements and ensure the tool measured what was intended. The instrument was pre-tested in two

communities not included in the survey among 40 males aged 18 -64 who were residents of Bolgatanga. Participants of the pretesting were asked to comment on the questionnaires' applicability and appropriateness (Validity). In addition, it helped determine the requirements for completing the questionnaire.

3.10 Data Management and Analysis

Data collected was analysed using Microsoft Excel and STATA 14 (StataCorp LLC, 2023). Descriptive statistics were used to summarise responses into frequencies and percentages. The chi-square test was used to analyse categorical variables; p-values≤ 0.05 were considered statistically significant. Logistic regression analysis was employed to identify the relationship between the outcome and predictor variables. The data were kept confidential and were not released to any third- party.

3.11 Ethical Considerations

The Committee on Human Research Publications and Ethics (CHRPE), KNUST, approved the study with reference number CHRPE/AP/947/24. The Upper East Regional Health Directorate (UERHD) also granted permission through an introductory letter from the Department of Public Health Education AAMUSTED. All permissions from other relevant authorities were received for data collection. All the above permission-seeking procedures at various levels were for ethical clearance and approval to conduct the study.

CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter presents findings from this study on the prevalence, risk factors, sociocultural determinants and sociodemographic predictors influencing HIV transmission. Of the 500 heterosexual males estimated for the study, 480 participated, while 20 declined, representing a non-response rate of 4%. Hence, the analyses were based on the data from participants sampled from five communities, namely Yekine (20%), Bolga soe (19.6%), Sumbrungu (19.8%), Tanzui (20.4%), and Bukare (20.2%). However, 462 agreed to test for their HIV status.

4.1 Socio-Demographic Characteristics of Participants

Table 1 shows the socio-demographic characteristics of the participants; 36.7% were between the ages of 28-37 years, and 9.4% were between 58-64 years. In addition, 52.7% of them were single, whereas 5.4% were divorced. Furthermore, 35.8% of the participants had tertiary education, 2.3% had primary education, and 3.5% had formal education. Concerning ethnicity, 32.3% belonged to the Frafra, and 7.5% were Mamprusi. Concerning monthly income, 27.9% earned between Gh¢ 100 and Gh¢ 500, followed by Gh¢ 1100 and Gh¢ 2000 (22.3%), with Gh¢ 3100 and Gh¢ 4000 as the least (9%).

Table 4.1. Socio-Demographic Characteristics of Participants

Variable	(n)	(%)
Age		
18-27	94	19.6
28-37	176	36.7
38-47	97	20.1
48-57	113	23.6
Marital status		
Single	253	52.7
Married	164	34.2
Divorced	63	13.1
Educational attainment		
No formal education	17	3.5
Primary School	11	2.3
Junior High School	107	22.3
Senior High School	110	22.9
Tertiary	172	35.8
Vocational School	63	13.2
Religious affiliation		
Christianity	231	48.1
Islam	161	33.5
African tradition	72	15
None	16	3.3
Ethnicity		
Frafra	155	32.3
Kusalsi	52	10.8
Bulsa	55	11.5
Hausa	60	12.5
Mosi	70	14.6
Mamprusi	36	7.5
Others	52	10.8
Monthly income		
Between Gh¢ 100 and Gh¢ 500	134	27.9
Between Gh¢ 600 and Gh¢ 1000	98	20.4
Between Gh¢ 1100 and Gh¢ 2000	107	22.3
Between Gh¢ 2100 and Gh¢ 3000	98	20.4
Between Gh¢ 3100 and Gh¢ 4000	43	9
Community of residence		
Yekine	96	20
Bolga soe	94	19.6
Sumbrungu	95	19.8
Tanzui	98	20.4
Bukare	97	20.2

(Source: Field data, 2024)

4.2 Prevalence of HIV among Heterosexual Males

Table 4.2 shows that the prevalence of HIV was 3.7% (95% CI: 2.00 – 5.50) among the study participants (χ^2 = 410.7, DF = 1, $p < 0.05$). The prevalence rates observed among the study community were as follows: 1.50%, 1.00%, and 0.60% for Yekine, Bukare Bolga Soe and Tanzui, respectively, whereas Sumbrungu had zero incidence of HIV (0.00%).

Table 4.2. Prevalence of HIV among the Heterosexual Males

	Negative		Positive		
Community of residence	**(n)**	**(%)**	**(n)**	**(%)**	**%Total**
Yekine	89	18.50	7	1.50	20.00
Bolga soe	91	19.00	3	0.60	19.60
Sumbrungu	95	19.80	0	0.00	19.80
Tanzui	95	19.80	3	0.60	20.40
Bukare	92	19.20	5	1.00	20.20
Total	**462**	**96.30**	**18**	**3.80**	**100**

(Source: Field data, 2024)

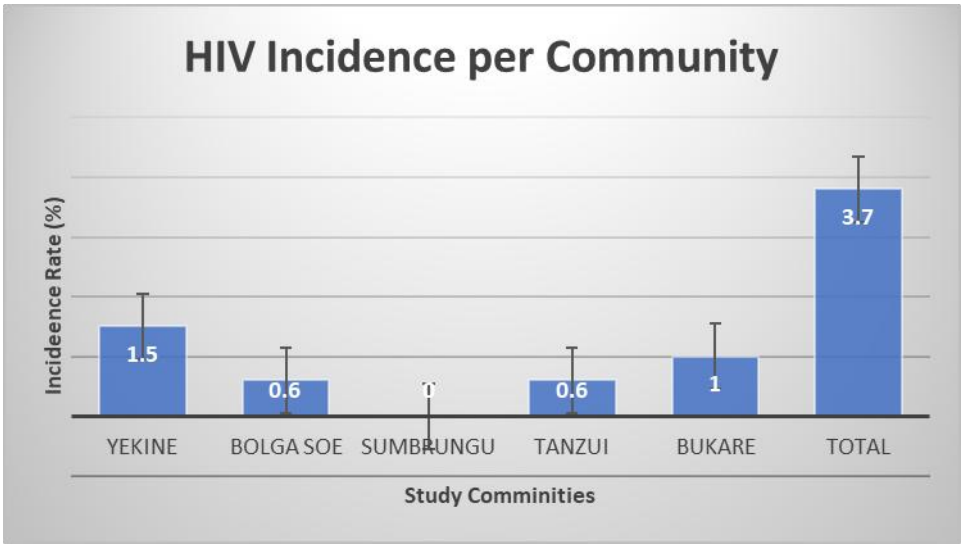


Figure 2: Incidence of HIV in the Study Communities

4.3 Risky Sexual Behaviour and Sociocultural Factors Influencing HIV Transmission among Heterosexual Males

4.3.1 Risky Sexual Behaviour and Factors Influencing HIV Transmission

Table 4.3 indicates that 34.6%, 30.6%, and 0.2% had their first sexual intercourse between the ages of 23 and 27, 18 and 22, and 34 and 39 years old, respectively. The majority (65.2%) of the participants had one sexual partner within the past 12 months, whereas 1.5% had two or more sexual partners within the same period. Furthermore, 48.3% of the participants had two or more transactional sex in the last 12 months, 66.7% did not use condoms in their last sexual intercourse, whereas 35.8% indicated having two or more sexual intercourse under the influence of alcohol or drugs. Furthermore, 41.7% and 22.1% took alcohol or drugs to enhance their sexual performance once and or two or more occasions, respectively.

Table 4.3 shows that having multiple sexual partners, transactional sex, and sexual acts under the influence of alcohol or drugs were independent factors significantly associated with increased risk of HIV transmission in bivariate analysis. The risk of HIV was 2.63 times higher among males who had one sexual partner compared to those with none (AOR = 2.63; 95% CI: 1.22 – 3.84). Participants having one and two or more transactional sex had an increased risk of HIV infection (AOR = 1.15; 95% CI: 1.02 – 2.88) and (AOR = 1.66; 95% CI: 1.14 – 2.91) compared to those without transactional sex. The likelihood of HIV transmission increases among males who had two or more sexual intercourse (AOR = 1.82; 95% CI: 1.25 – 2.67) and one sexual intercourse (AOR = 1.34; 95% CI: 1.29 – 3.70) under the influence of alcohol or drugs compared with those who did not.

4.3.3 Sociocultural Factors Influencing HIV Transmission

Table **4.4** shows that 61.5% of the participants indicated that their culture supports and promotes early marriage, 77.7% said the culture supports and promotes polygamy, and 46.3% indicated that the culture accepts having multiple sexual partners as an indicator of male strength and masculinity. The majority (68.5%) of the participants stated that their families, community, and peers influenced their decision-making regarding sexual behaviour, and 70.4% said the culture supports and promotes the inheriting of wives and widows of deceased family members. Cultural acceptance of multiple sexual partners, families, community, and peers influencing decision-making regarding sexual behaviour and inheritance of wives and widows of a deceased family member were independent factors significantly associated with increased risk of HIV transmission in bivariate analysis.

Table 4.4 further shows that the risk of HIV increases in males who accepted having multiple sexual partners as an indicator of male strength and masculinity (AOR = 1.38; 95% CI: 1.12 – 2.34) compared with those who do not and about 3 times among males influenced by their families, community, and peers in decision-making regarding sexual behaviour (AOR = 2.74; 95% CI: 1.73 – 4.29). The risk of HIV infection was about 4 times higher among males who supported and promoted the culture of the inheritance of wives and widows of deceased family members (AOR = 3.78; 95% CI: 1.26 – 5.29) compared with those who did not support this practice.

Table 4.3. Risky Sexual Behaviour Influencing HIV Among the Participants

(Source: Field data, 2024)

			HIV status							
Categories	**n**	**%**	**Negative**	**Positive**	**COR**	**[95%CI]**	**p-value**	**AOR**	**[95%CI]**	**p-value**
Age at first sexual intercourse										
12 -17	141	29.4	136	5	0.62	0.06 - 5.67	0.676	1.23	0.09 - 2.90	0.872
18 – 22	147	30.6	142	5	0.59	0.06 - 5.43	0.648	0.9	0.07 - 1.64	0.936
23 – 27	166	34.6	159	7	0.74	0.08 - 6.45	0.792	1.28	0.11 - 3.45	0.839
28 – 33	26	5.5	25	1	1			1		
Sexual partners in the past 12 months										
One	320	66.7	455	18	2.79	1.30 - 3.09	0.044*	**2.63**	1.22 - 3.84	0.039*
None	160	33.3	153	7	1			1		
Transactional sex in the last 12 months										
Two or more	232	48.3	220	12	1.61	1.16 - 2.30	0.044*	**1.66**	1.14 - 2.92	0.046*
One	211	44	208	3	1.16	1.03 - 0.84	0.031*	1.15	1.02 - 2.88	0.036*
None	37	7.7	34	3	1			1		
Use a condom in the last sexual intercourse.										
Yes	160	33.3	155	5	0.76	0.26 - 2.17	0.611	0.67	0.22 - 2.03	0.487
No	320	66.7	307	13	1			1		
Sex under the influence of alcohol/drugs										
Twice or more	172	35.8	166	6	1.87	1.28 - 2.66	0.018*	**1.82**	1.25 - 2.67	0.048*
Ones	131	27.3	126	5	1.46	1.29 - 3.10	0.015*	**1.34**	1.29 - 3.70	0.041*
None	177	36.9	170	7	1			1		
Take alcohol/drugs for sexual performance.										
Twice or more	106	22.1	102	4	0.935574	0.26 - 3.27	0.917	1.06	0.27 - 4.03	0.929
Ones	200	41.7	193	7	0.865285	0.29 - 2.51	0.791	0.82	0.27 - 2.46	0.727
None	174	36.3	167	7	1			1		

Table 4.4. Sociocultural Factors Influencing HIV Among the Participants

			HIV status							
Categories	**n**	**%**	**Negative**	**Positive**	**COR**	**[95%CI]**	**p-value**	**AOR**	**[95%CI]**	**p-value**
Early marriage										
Yes	295	61.5	284	11	0.98491	0.37 - 2.58	0.975	1.43	0.50 - 4.08	0.499
No	185	38.5	178	7	1			1		
Polygamy										
Yes	373	77.7	359	14	1.04	0.32 - 3.11	0.994	0.96	0.29 - 3.18	0.958
No	107	22.3	103	4	1			1		
Culture accepts multiple sexual partners as an indication of masculinity										
Yes	222	46.3	217	5	1.43	1.15 - 2.23	**0.019***	**1.38**	1.12 - 2.34	**0.019***
No	258	53.8	245	13	1			1		
Community and peers' influence decision-making on sexual behaviour										
Yes	329	68.5	314	15	2.35	1.67 - 3.26	**0.018***	**2.74**	1.73 - 4.29	**0.031***
No	151	31.5	148	3	1			1		
Inheritance of wives and widows of a deceased family member										
Yes	338	70.4	326	12	3.83	1.30 - 5.68	**0.023***	**3.78**	1.26 - 5.29	**0.015***
No	142	29.6	136	6	1			1		

(Source: Field Data, 2024)

4.4 Sociodemographic Predictors of HIV Transmission among Heterosexual Males

Table 4.5 shows that after multivariate analysis, the risk of HIV infection increased about two times among males within the age category of 28-37 years (AOR = 1.55; 95% CI: 1.15 – 3.04) compared with those within the other age categories. Furthermore, the risk of HIV infection increased about five times among participants who were single as compared to married, divorced, and widowed men (AOR = 4.61; 95% CI: 1.53 – 6.21). Moreover, the risk of HIV infection increased to about ten and eight times among males with no formal education and primary school education (AOR = 10.87; 95% CI: 8.72 – 14.87) and (AOR = 7.84; 95% CI: 1.36 – 10.89), respectively compared with those higher educational status.

Table 4.5. Association Between Socio-Demographic Characteristics and HIV Transmission Among the Participants

			HIV status							
Predictors	**n**	**%**	**Negative**	**Positive**	**COR**	**[95%CI]**	**p-value**	**AOR**	**[95%CI]**	**p-value**
Age										
18-27	94	19.6	92	2	0.46	0.06 - 1.42	0.455	0.18	0.01 - 1.02	0.234
28-37	176	36.7	165	11	1.43	1.30 - 2.70	**0.048***	**1.55**	1.15 - 3.04	**0.033***
38-47	97	20.2	94	3	0.68	0.11 - 1.25	0.686	0.33	0.02 - 1.95	0.383
48+	113	23.6	111	2	1			1		
Marital status										
Single	253	52.7	241	12	1.79	1.22 - 3.20	**0.018***	**4.61**	1.35 - 6.21	**0.044***
Married	164	34.2	159	5	1.13	0.12 - 2.98	0.911	2.79	0.24 - 3.22	0.409
Divorced	63	13.1	62	1	1			1		
Educational attainment										
No formal education	17	3.5	15	2	8.26	1.70 - 10.32	**0.033***	**9.51**	1.62 - 14.97	**0.015***
Primary School	11	2.3	10	1	6.20	1.35 - 8.30	**0.021***	**7.84**	1.36 - 10.89	**0.019***
Junior High School	107	22.3	102	5	3.03	0.34 - 5.62	0.315	1.72	0.14 - 2.58	0.666
Senior High School	110	22.9	107	3	1.73	0.17 - 3.07	0.635	1.43	0.13 - 2.41	0.768
Tertiary	172	35.8	166	6	2.24	0.26 - 4.99	0.459	2.40	0.25 - 3.03	0.448
Vocational School	63	13.1	62	1	1			1		
Monthly income										
Between Gh¢ 100 and Gh¢ 500	134	27.9	128	6	0.96	0.18 - 2.94	0.962	0.62	0.05 - 1.46	0.711
Between Gh¢ 600 and Gh¢ 1000	98	20.4	95	3	0.64	0.10 - 3.02	0.641	0.51	0.04 - 1.94	0.598
Between Gh¢ 1100 and Gh¢ 2000	107	22.3	101	6	1.21	0.23 - 3.28	0.814	1.26	0.13 - 2.05	0.84
Between Gh¢ 2100 and Gh¢ 3000	98	20.4	97	1	0.21	0.01 - 2.39	0.21	0.31	0.02 - 2.50	0.394
Between Gh¢ 3100 and Gh¢ 4000	43	9	41	2	1			1		

(Source: Field data, 2024)

CHAPTER FIVE

DISCUSSION OF THE RESULTS

5.0 Introduction

This chapter discusses the study findings based on the study's objectives. The following objectives guided the study.

5.1 Prevalence of HIV among Heterosexual Males in Bolgatanga Municipality.

The study revealed a 3.8% (95% CI: 2.00 – 5.50) prevalence of HIV among the consented heterosexual males across the selected communities. This is in line with the numerous previous studies conducted in Ghana (GAC, 2023; GHS, 2022; Ali et al., 2019). Even though this study's findings differ from previous studies (Ba et al., 2019). The prevalence observed is still higher than the national prevalence rate of 1.6%. The difference in this study's prevalence could be attributed to the characteristics of the study population, cultural differences, availability and accessibility to health facilities, and geographical variation.

5.2 Risky Sexual Behaviour/ Practices Influencing HIV Transmission

The study also revealed that participants who reported having only one sexual partner have about three times higher likelihood of contracting HIV compared to those with no sexual partner. Findings from previous studies corroborate this finding (Kalichman et al., 2020). This indicates that even a single sexual partner can pose a significant risk if that partner is HIV-positive or engages in high-risk sexual behaviours. This finding is also in contrast to previous studies that found that there is no correlation between monogamous sexual partners and increased HIV risk (Antonini et al., 2021; Hageman et al., 2010; Starks et al., 2024).

This study further found that participants who reported indulging in transactional sex with one, two, or more times had (AOR 2.88 and 1.66 respectively) an increased risk of contracting HIV than individuals who do not practice transactional sex. This current study finding is in line with findings from previous studies (Kalichman et al., 2020; Choudhry et al., 2015). Which reported that transactional sex and HIV risks in Uganda was 5.2% among young men who reported paying for sex, whereas a significant number engaged in multiple concurrent sexual partnerships, which are known to increase HIV risk. Findings from previous studies (Menza et al., 2020; Choudhry et al., 2015). In contrast with the findings in the current study, which showed that while individuals engaging in transactional sex reported rates of other STIs, the overall prevalence of HIV among this group was not directly established as significantly higher compared to non-participants (Menza et al., 2020). The study emphasised the need for more current data to understand the complexities of transactional sex and its health outcomes in the context of modern HIV prevention strategies, including pre-exposure prophylaxis (PrEP) (Menza et al., 2020). Research focusing on young people in Uganda indicated that while transactional sex was associated with risky sexual behaviours, it did not consistently correlate with increased HIV serostatus across all demographics (Choudhry et al., 2015).

The sociocultural construct of masculinity among the youth is anchored in societal expectations that equate manhood with the role of a provider in sexual relationships and the pursuit of multiple partners in sub-Saharan Africa (Chen et al., 2007; Dunkle et al., 2007). A previous study further supports this assertion that males, in a broader context, are supposed to provide in relationships as proof of masculinity, making men indulge in transactional sex (Stephenson et al., 2013). Furthermore, socioeconomic and financial

challenges, like affording decent accommodation and financial support to meet essential living expenses, serve as a motivator for women to trade sex with men in order to meet their needs (Ogunbajo et al., 2021). It has been shown that young men, particularly in Sub-Saharan Africa, engage in transactional sex with older women (sugar mummies) not only for survival but also to obtain luxury items and social status (Ogunbajo et al., 2021) Peer pressure exacerbates this behaviour as young people feel compelled to participate in these exchanges to fit in with their peers (Chatterji et al., 2005). This trend suggests that economic necessity is a primary motivator for sex exchange (Stoner et al., 2019).

This current study found that engaging in sexual intercourse while under the influence of alcohol or drugs was a significant predictor of HIV infection. This indicates that participants who have sex under the influence of alcohol were twice at risk of contracting HIV as their counterparts who did not engage in sexual intercourse under the influence of alcohol. This finding is akin to previous studies that have demonstrated a significant correlation between alcohol consumption and having multiple sexual partners among both men and women. earlier study reports (Ntombela et al., 2021; Khumalo et al., 2020; Wray et al., 2019; Scott-Sheldon et al., 2016; GERBI et al., 2009; Rodger et al., 2019; Roger Pebody, 2019; Serra et al., 2020). Also, it has been reported that men who often consumed alcohol prior to sexual activity were notably more likely to use condoms inconsistently (Choudhry et al., 2014). Similarly, women who regularly drank alcohol before sex were found to be twice as likely to practice inconsistent condom use with new partners (Choudhry et al., 2014).

Contrary to this current study finding, Allen &Walter (2018) suggested that though alcohol is recognised as a depressant of the central nervous system, moderate

consumption may enhance sexual desire and reduce sexual anxiety, potentially improving erectile function (Allen & Walter, 2018). However, moderate alcohol consumption may temporarily boost sexual desire due to increased testosterone (Adrienne Santos-Longhurst, 2019). This may influence men to believe that alcohol enhances their performance or desirability, thereby engaging in alcohol consumption, exposing them to engage in risky sexual behaviours and, consequently, the risk of contracting HIV (Wray et al., 2019).

5.3 Sociocultural Factors Influencing HIV Transmission among Heterosexual Males

The study also explored the sociocultural factors likely to influence HIV transmission among heterosexual males. The study found an increased risk of HIV infection in men who accepted that having multiple sexual partners was an indicator of male strength and masculinity as compared with those who rejected this cultural practice. Masculine norms are a component of gender norms and consist of the socially prescribed rules, roles, and behaviours associated with men and manhood across different cultures (Ragonese et al., 2019).

These norms intersect with other aspects of identity, such as ethnicity and socioeconomic status, leading to diverse manifestations of masculinity in specific contexts (Ragonese et al., 2019). The finding of this study aligns with the previous report (Khumalo et al., 2020b). Societies with more decisive gender differences tend to exhibit higher rates of male sexual activities, reinforcing the idea that masculinity is often linked to sexual conquest (Ubillos et al., 2020). Moreover, gender inequality creates power imbalances within relationships, making it difficult for partners to

discuss their sexual needs and desires openly (Leclerc-Madlala, 2009). Contrary to this study's findings, some societies and cultures accept multiple sexual partnerships as a basis for demonstrating strength and masculinity (Larsson et al., 2022; Khumalo et al., 2020, 2021). Other cultures and traditions have other views and perceptions, like Sweden, Norway, and Denmark, which strongly emphasise gender equity and individual autonomy (Vladimir, 2024). Having multiple partners does not carry the same connotation of masculinity; instead, the focus is on mutual consent and respect among all parties involved (Vladimir, 2024). Many individuals prioritise emotional connections over traditional notions of masculinity linked to sexual conquests (Thomas, 2019). While cultural acceptance of multiple sexual partners as an indicator of masculinity persists in some contexts, modern societies are increasingly recognising diverse relationship structures that do not reinforce traditional masculine norms (Thomas, 2019). This might explain why a majority (53.8%) of the respondents indicate they do not subscribe to this view of cultural acceptance of multiple sexual partners as an indicator of strength or masculinity.

This current study found a significant association between family, community and peer influence decision-making regarding sexual behaviour and the risk of HIV infections (AOR= 2.74, p=0.031), collaborating with previous reports (Wetherill et al., 2010; Mmari et al., 2016; Kaufman-Parks et al., 2023; Wamoyi et al., 2015). Peer groups often establish norms that dictate acceptable behaviours, leading individuals to conform to group expectations (Gardner & Steinberg, 2005). This results in both positive outcomes, such as increased engagement in prosocial activities, and adverse outcomes, such as participation in risky behaviours like non-condom use, increasing their vulnerability to HIV (Ciranka & van den Bos, 2019). The presence of antisocial peers

or those who endorse permissive sexual norms can further increase the likelihood of engaging in risky sexual behaviours, such as multiple partnerships or inconsistent condom use (Bingenheimer et al., 2015). Contrary to the finding of this current study, previous studies found that there are some positive aspects of the influences of peers, families and communities on heterosexual males regarding their sexual decision-making. For instance, Wetherill et al. (2010) found that Parental monitoring of children's activities correlates with reduced risky sexual behaviours (Wetherill et al., 2010). Additionally, it was found that when parents express their expectations and values regarding sexual behaviour, it significantly influences their children's choices (Wetherill et al., 2010). Parental acceptance correlates with lower HIV risk behaviours, while rejection can lead leads to increased risk, including higher rates of sexual activity (Barnett et al., 2023). The environment in which heterosexual males grow up also influences their sexual decision-making while growing up. Boys who witness positive relationship models in their families are more likely to engage in respectful and equitable partnerships as they mature (Wamoyi et al., 2015). Furthermore, Rudgard et al. (2023) found that adolescents in environments with better educational opportunities and food security demonstrate lower probabilities of engaging in high-risk sexual activities such as multiple partnerships and transactional sex (Rudgard et al., 2023).

Furthermore, the study found that men who inherit widows are at a higher risk of HIV infection compared to those who are not inherited. Findings from previous studies support this study's finding (Agot., et al., 2010). Similar to this study, a cross-sectional study conducted in northern Ghana found that the practice of wife and widow inheritance contributes significantly to HIV transmission (Tenkorang, 2014). Contrary to the finding of this study, Agot et al. (2010) found that the inherited widows have

lower odds of HIV infection, suggesting a protective effect associated with the social support that comes from being inherited by family members rather than non-relatives (Agot., et al., 2010).

5.4 Sociodemographic Predictors of HIV Transmission Among Participants

The study found that the risk of HIV was about two times higher among heterosexual males who were within the age range of 28-37 years compared with other age categories. This finding is in line with earlier reports, which asserted that HIV prevalence among heterosexual men tends to increase with age (Ntombela et al., 2021). Although from 2018 to 2022, there was a notable decline in overall new HIV infections, the dynamics vary by age group, and this assertion agrees with previous studies conducted in South Africa (Ntombela et al., 2021). This trend suggests that young adult men may engage in high-risk sexual behaviour or have more exposure over time. Similarly, in Ghana, a population-based study by Ba et al. (2019) reported that among men aged 15-49 years, the proportion of HIV-positive individuals increased with age (Ba et al., 2019).

Furthermore, lower socioeconomic status has been linked to higher HIV rates among older heterosexual men (CDC, 2011). The accumulative exposure to potential HIV infection increases for older men because older men have had more time to engage in risky behaviours that could lead to HIV acquisition. (Ntombela et al., 2021). Also, ageing can affect the immune system's ability to respond to infections, potentially making older individuals more susceptible to HIV exposure (Govender et al., 2019).

Lower levels of education were found to be associated with the prevalence of HIV among men with informal or primary education and were at greater risk compared to those more educated (Govender et al., 2019; Ntombela et al., 2021). Additionally, it has been found that cultural norms often emphasise male power in sexual relationships, leading men to engage in riskier sexual practices without protection. These dynamics perpetuate the cycles of transmission communities (Govender et al., 2019; Ntombela et al., 2021).

In addition, this current study found that heterosexual males who were not married were at a higher risk of being infected with HIV (AOR = 4.61; 95% CI: 1.53 – 6.21) compared with those who were married, divorced, or widowed. This finding has collaborated with findings from previous studies that found that individuals who were married and living with their spouses had significantly reduced odds of being HIV positive compared to unmarried individuals (References). The HIV incidence was only 0.27% among married individuals, whereas 2.91% among cohabiting individuals who were not married (Shisana et al., 2016). Similarly, cohabiting individuals were found to have higher HIV incidence rates than married individuals, likely due to the increased likelihood of having multiple sexual partners and lower levels of sexual exclusivity associated with non-marital relationships (Shisana et al., 2016). Additionally, the practice of having multiple sexual partners is more common among single individuals, which is associated with higher susceptibility to sexually transmitted infections, including HIV (Currie et al., 2019)

On the other hand, marriage is a safeguard against the transmission of STIs and HIV (Shisana et al., 2015). Nevertheless, the survey report asserts that new HIV infections

were more prevalent among married and cohabiting couples, with 80% of new infections in sub–Saharan Africa occurring in married women (Shisana et al., 2015). While marriages can provide some protection factors against HIV for men, they may not offer the same protection for women (Srikrishnan et al., 2022). Additionally, though married individuals generally show lower HIV prevalence rates, certain studies indicate that women in marriages may face unique risks, including reduced condom use and discussions about HIV prevention with partners, leading to potential exposure through infidelity or lack of communication about risk (Shisana et al., 2016; Srikrishnan et al., 2022).

The study found that the risk of HIV was ten and eight times higher among heterosexual males with no formal education and primary school education, respectively, compared to those with higher education. This finding has collaborated with reports from previous studies that showed that lower educational levels often exhibit higher rates of unprotected sex, inconsistent condom use, transactional relationships (Lucas & Wilson, 2018; Maher et al., 2011; Leon et al., 2017). Furthermore, completion of secondary school among women significantly correlated with lower rates of HIV infection, a significant mitigating factor in the HIV prevention strategy (UNAIDS, 2021). An additional year of secondary schooling reduced the risk of HIV infection among girls by about five percentage points (Neve et al., 2015). Conversely, in countries like Kenya and Malawi, the evidence is less consistent (Mee et al., 2018). These findings underscore the complex interplay between the risk factors and sociodemographic factors influencing HIV prevalence among heterosexual males in the Bolgatanga Municipality.

CHAPTER SIX

SUMMARY OF THE FINDINGS, RECOMMENDATIONS, AND CONCLUSIONS

6.0 Introduction

This chapter summarises the findings, recommendations, and conclusions. It reviews the research objectives and summarises the findings. The chapter further explores various recommendations for implementation and highlights some areas for future research directions. Finally, it concludes with a conclusion statement.

6.1 Summary of the Findings

The study was conducted on the experiences of heterosexual males on risk factors and sociocultural determinants in the Bolgatanga Municipal of the Upper East Region. A cross-sectional was employed to capture the experiences of heterosexual males on sexual behaviours and sociocultural determinants.

The study found a 3.8% (95% CI: 2.00 – 5.50) prevalence of HIV with significant variation across selected communities among the studied heterosexual males in the Bolgatanga Municipal. This finding highlights the importance of context-specific strategies to address these health risk factors in this population. Additionally, the multivariate analysis revealed that transactional sex, multiple sexual partners and sex under the influence of alcohol or drugs were statistically significant independent factors ($p < 0.05$). These findings highlight the importance of comprehensive, integrated health education on sexual practice to reduce risk factors. Furthermore, the study revealed that cultural acceptance of multiple sexual partners as an indicator of strength or masculinity, inheritance of wives and widows of deceased family members, and

community, family and peers influence decision-making regarding sexual behaviour/practices significantly correlate with risk factors and impact on the adherence to sexual health interventions. Finally, this study revealed that age, marital status and educational attainment were associated with higher HIV infection ($p < 0.05$).

6.3 Recommendation /Policy Implications

The findings from this study have implications for public health practices. This study recommends a multi-sectoral approach that combines the action of the Government, Ministry of Health (MOH), Ghana Health Service (GHS), and the various health facilities to reduce the prevalence, risk factors and sociocultural determinants of HIV infections in the Bolgatanga municipality and Ghana as a whole:

6.3.1 Ministry of Health (MOH)

1. The MOH should legislate mandatory HIV testing for both widows and widowers during the widow inheritance process for partners to reduce the risk of HIV infection.
2. The MOH should enact policies that remove institutional barriers by creating acceptable services for men and reflecting their needs. This includes creating separate male clinics and hiring more male staff at primary healthcare to offer client-centred clinical services.

6.3.2 Ministry of Health (MoH)

1. The Ministry of Health (MoH) should introduce a community-based service delivery model, such as home or mobile testing, and increase the proximity of

clinical services to where men congregate or work to increase men's uptake of HIV testing and counselling.

6.3.3 Ghana Health Service (GHS)

1. The Ghana Health Service (GHS) should introduce an intervention that increases health-seeking behaviour among men, such as information and campaigns on comprehensive sexuality education offered in and out of formal learning institutions, health facilities, and communities using the media.
2. Ghana Health Service should enact policies and strategies that address economic disparities, as there is a direct relationship between good health and poverty, as the impact of HIV is seen as a real threat to the country’s economic development.

6.3.4 Health Facilities

1. The health facilities should develop standard operations, including in-service training, and healthcare practitioners should specifically be assigned to provide healthcare services for people who access HIV testing and counselling services at the various facilities
2. Health facilities should foster strong collaboration between health stakeholders and religious, community, or traditional leaders to endorse and promote adherence and help moderate religious and cultural barriers.

6.4 Future Research Directions

1. It is recommended that further studies be carried out in other regional districts and municipalities using a qualitative research method to understand the sociocultural underpinning of HIV transmission dynamics in the region.
2. Further studies to explore the use of new technologies, such as community-based health service delivery models, to improve education, screening, and treatment adherence among heterosexual males.

6.5 Conclusion

This study revealed that the practice of having multiple sex partners, transactional sex, and sexual acts under the influence of alcohol or drugs, decision-making on sexual behaviour influenced by community and peers, age, marital status, and educational attainment profoundly influence HIV infection. This study also revealed that sociocultural factors such as cultural acceptance of multiple sexual partners as masculinity and inheritance of wives and widows of deceased family members are independent risk factors for HIV infections among heterosexual males.

The findings of this study highlight that sociocultural determinants and sociodemographic predictors were intrinsically linked to HIV transmission and infection and, therefore, required that context-specific prevention and intervention be deployed as strategies to avert it. Hence, culturally and socially sensitive education strategies targeting men should be devised to address the gender factors that influence men to engage in risky sexual behaviours.

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APPENDIX I: Participant Information Leaflet and Consent Form

Committee on Human Research Publication and Ethics
School of Medical Sciences, Kwame Nkrumah University of Science and Technology
Kumasi, Ghana. Tel: 233 3220 63248 or 233 20 5453785. Email: chrpe.knust.kath@gmail.com

CONSENT FORM

Statement of person obtaining informed consent:

I have fully explained this research to _____ and have given sufficient information about the study, including that on procedures, risks and benefits, to enable the prospective participant make an informed decision to or not to participate.

DATE: _____ NAME: _____

Statement of person giving consent:

I have read the information on this study/research or have had it translated into a language I understand. I have also talked it over with the interviewer to my satisfaction.

I understand that my participation is voluntary (not compulsory).

I know enough about the purpose, methods, risks and benefits of the research study to decide that I want to take part in it.

I understand that I may freely stop being part of this study at any time without having to explain myself.

I have received a copy of this information leaflet and consent form to keep for myself.

NAME:_____

DATE: _____ SIGNATURE/THUMB PRINT: _____

Committee on Human Research Publication and Ethics
School of Medical Sciences, Kwame Nkrumah University of Science and Technology
Kumasi, Ghana. Tel: 233 3220 63248 or 233 20 5453785. Email: chrpe.knust.kath@gmail.com

Statement of person witnessing consent (Process for Non-Literate Participants):

I _____(Name of Witness) certify that information given to _____(Name of Participant), in the local language, is a true reflection of what I have read from the study Participant Information Leaflet, attached.

WITNESS' SIGNATURE (maintain if participant is non-literate): _____

MOTHER'S SIGNATURE (maintain if participant is under 18 years): _____

MOTHER'S NAME: _____

FATHER'S SIGNATURE (maintain if participant is under 18 years): _____

FATHER'S NAME: _____

Committee on Human Research Publication and Ethics
School of Medical Sciences, Kwame Nkrumah University of Science and Technology
Kumasi, Ghana. Tel: 233 3220 63248 or 233 20 5453785. Email: chrpe.knust.kath@gmail.com

Participant Information Leaflet and Consent Form

This leaflet must be given to all prospective participants to enable them know enough about the research before deciding to or not to participate

Title of Research: sociocultural factors and risky sexual behaviour influencing HIV and STI transmission in the Bolgatanga of the Upper Region. Ghana

Name(s) and affiliation(s) of researcher(s): George Ahiaka of the Akenten Appiah Menka University of Skill Training and Entrepreneurial Development (Asante Mampong) is conducting this study.

Background (Please explain simply and briefly what the study is about): Strategies to address the HIV/AIDS epidemic over the years have mainly focused on women because over 50% of persons living with HIV/AIDS (PLWHA) globally are women. However, researchers are beginning to recognize that women's vulnerabilities are inextricably linked to men's behavior, sanctioned by masculinity beliefs. This study seeks to understand how sociocultural factors and risky sexual behavior influence the transmission of HIV and STI among heterosexual males 18 to 64 years old in the Bolgatanga Municipality of the Upper East Region, Ghana, and how this risky sexual behavior contributes to the high prevalence HIV/STI among the female counterparts.

Purpose(s) of research: The purpose of this study is to ascertain the relationship between sociocultural factors and risky sexual behavior and how they interact to influence HIV and STI transmission among heterosexual males aged 18 to 64 of the Bolgatanga Municipal in the Upper East Region, Ghana.

The Bolgatanga municipality has been demarcated into 10 administrative towns by the Municipal Assembly, so this study will utilize simple random selection to select five (5) communities out of the 10 communities. A systematic sampling technique will select households within the designated five (5) communities. This study will employ stratified sampling to group the target population into age groups: heterosexual males aged 18-64+ (18-19, 20-29, 30-39, 40-49, 50 -59, 60-64). Participants in this study will be recruited from individual households. In cases where several men belong to different age subgroups in a household, a fair selection process will be implemented through a simple random selection technique. Each participant will be expected to complete the questionnaire provided by the researcher. The study will utilize a sample size of 500 males aged 18 to 64 in the Bolgatanga Municipality.

Risk(s): No risk has been identified as being associated with this study. However, the inconvenience of answering questions on sexual behavior, experiences, and cultural sensitivity is anticipated.

Committee on Human Research Publication and Ethics
School of Medical Sciences, Kwame Nkrumah University of Science and Technology
Kumasi, Ghana. Tel: 233 3220 63248 or 233 20 5453785. Email: chrpe.knust.kath@gmail.com

Benefit(s): No risk has been identified as being associated with this study. However, the inconvenience of answering questions on sexual behavior, experiences, and cultural sensitivity is anticipated

Confidentiality: To ensure participants' anonymity, personal data will be encrypted and kept in a safe location, and any identifying information will be omitted from the analysis's results

Voluntariness: It is entirely voluntary for you to participate in this study.

Alternatives to participation: There is no penalty for choosing not to participate or respond to the questionnaire.

Withdrawal from the research: Participants have the right to withdraw from the study at any point without coercion.

Consequence of Withdrawal: There will be no repercussions if you choose to withdraw from this study.

Costs/Compensation: There will be no compensation for participating in this study

Contacts: If you have any further inquiries or need clarification about this study, please contact George Ahiaka, the principal investigator, at 0249039678.

Further, if you have any concern about the conduct of this study, your welfare or your rights as a research participant, you may contact:

The Office of the Chairman
Committee on Human Research and Publication Ethics
Kumasi
Tel: 03220 63248 or 020 5453785

APPENDIX III: Structured Questionnaire

QUESTIONNAIRE

SECTION A: SOCIODEMOGRAPHIC CHARACTERISTICS

I want to start by asking you a few questions about yourself.			
NO	**QUESTIONS**	**RESPONSE OPTIONS**	**SKIP**
1.	What is your age	1. Between 18 and 27 [ ] 2. Between 28 and 37 [ ] 3. Between 38 and 47 [ ] 4. Between 48 and 47 [ ] 5. Between 58 and 64 [ ]	
2.	What is your marital status?	1. Single. [ ] 2. Marrie. [ ] 3. Divorced [ ] 4. Widowed [ ]	
3.	Do you have more than one wife?	1. Yes [ ] 2. No [ ] 3. Don't know [ ]	
4.	What is your highest level of education?	1. No education [ ] 2. Primary School [ ] 3. Junior High School [ ] 4. Senior High School [ ] 5. Tertiary [ ] 6. Vocational education [ ]	
5.	What is your religious affiliation?	1. Christian [ ] 2. Muslim [ ] 3. Traditional/Spiritualist [ ] 4. No religion [ ]	

6.	To what ethnic group do you belong?	1. Frafra [ ] 2. Mosi [ ] 3. Kusalsi [ ] 4. Mamprusi [ ] 5. Builsa [ ] 6. Hausa [ ] 7. Others [ ]	
7.	Have you received information about HIV/AIDS in the past 12 months?	1. Yes [ ] 2. No [ ] 3. Don't know [ ]	
8.	On the average, how much do you earn from your work monthly?	Between Gh¢ 100 and Gh¢ 500 [ ] Between Gh¢ 600 and Gh¢ 1000 [ ] Between Gh¢ 1100 and Gh¢ 2000 [ ] Between Gh¢ 2100 and Gh¢ 3000 [ ] Between Gh¢3100 and Gh¢4000 [ ]	
9.	Which community do you live within the municipality?	1. Bolga soe [ ] 2. Yikine [ ] 3. Bukare [ ] 4. Sumbrungu [ ] Tanzui [ ]	
10	What is your source of information on HIV/STI?	1. Television [ ] 2. Radio [ ] 3. Health institution [ ] 4. Friends/peers [ ] 5. Magazine/newspapers [ ] 6. Seminar [ ] 7. School [ ]	

11	At what age did you have your sexual intercourse?	1. Between 12 and 17 2. Between 18 and 22 3. Between 23 and 27 4. Between 28 and 33 5. Between 34 and 39	
12	When was the last time you visited the hospital for a medical check-up without feeling sick?	1. Within the last 3 months 2. Within the last 6 months 3. With the last 12 months 4. More than 12 months	
13	Have you received information on HIV/AIDS in the past 12 months	1. Yes 2. No 3. I don’t know	

SECTION B: SEXUAL BEHAVIOURS/PRACTICES

Here are some questions about sexual behaviours/practices. I will read you a statement. Please answer which of the options is most closely suited to you.			
NO	**QUESTIONS**	**RESPONSE**	**SKIP**
Risk of Sexually Transmitted Infections and Risky Behaviours			
14.	Number of transactional sexes in last 12 months	1. None [ ] 2. One [ ] 3. Two or more [ ]	
18	The last time you had sexual intercourse, did you (or your spouse/partner) use a condom?	1. Yes [ ] 2. No [ ]	
19	Have you had any sex while under the influence of alcohol/drugs?	1. None [ ] 2. Ones [ ] 3. Two or more times [ ]	
20	Number of times you have taken alcohol/drugs to enhance your sexual performance	1. None [ ] 2. Ones [ ] **3.** Two or more times **[ ]**	
21	In the last 12 months, did you patronise the service of a commercial sex worker?	1. Yes [ ] 2. No [ ]	

SECTION C: SOCIOCULTURAL FACTORS

I want to start by asking you a few questions about how sociocultural factors would hinder you from adhering to IHV/STI interventions.

	QUESTIONS	**RESPONSES**	**SKIP**
22	Do your cultural practices support or promote early marriage (either male or female below 18 years of age)	1. Yes [ ] 2. No [ ]	
23	Do you agree that society and tradition, through cultural factors, in any way influence men to engage in multiple sexual	1. Yes [ ] 2. No [ ]	

	partners		
24	Does having multiple sexual partners portray men to be strong or masculine?	1. Yes [ ] 2. No [ ]	
25	Do you agree that your family, community and peers played a role in your upbringing and decision-making regarding your sexual behaviour?	1. Yes [ ] 2. No [ ]	
26	According to your culture, do wives or female partners have a say when it comes to safe sex or condom use during sexual intercourse?	1. Yes [ ] 2. No [ ]	
27	Does your culture and society accept the practice of polygamous (marrying more than one wife) marriages?	1. Yes [ ] 2. No [ ]	
28	Do you agree that polygamy operates to create a concurrent sexual network within marriages, and multiple wives can lead to the spread of HIV?	1. Yes [ ] 2. No [ ]	
29	Does your culture and tradition allow the inheritance of wives and widows of a deceased family member?	1. Yes [ ] 2. No [ ]	

APPENDIX VI: Introductory Letter

AKENTEN APPIAH-MENKA UNIVERSITY
of Skills Training and Entrepreneurial Development

FACULTY OF ENVIRONMENT & HEALTH EDU.
DEPARTMENT OF PUBLIC HEALTH EDUCATION
P.O. Box 40, Asante Mampong 0209777318

Our Ref: M/DPHE/ADM/A/O3/09 29 April 2024

The Chairman
Committee on Human Research, Publications, and Ethics
School of Medical Sciences
KNUST
Kumasi.

Dear Sir,

Consent for Research on "Socio-cultural Factors and Risky Sexual Behaviour Influencing HIV and STI Transmission in the Bolgatanga Municipality of the Upper East Region, Ghana''

Mr. George Ahiaka (Index Number 8222030017) is the department's MPhil Public Health project student. As part of his academic requirements for the award of a Master of Philosophy Degree in Public Health, he will conduct research titled' **Socio-cultural Factors and Risky Sexual Behaviour Influencing HIV and STI Transmission in the Bolgatanga Municipality of the Upper East Region, Ghana.'** He will need ethical approval and clearance to conduct this study.

Mr. Ahiaka will conduct a community-based cross-sectional study to assess socio-cultural factors and risky sexual behaviour influencing HIV and STI transmission in the Bolgatanga Municipality of the Upper East Region, Ghana, and how this can influence the spread of HIV and STI in the Municipality. The study population will include males aged 18 to 64 who are permanent residents of the Bolgatanga Municipality of the Upper East Region. He needs your official approval to collect data from males between 18 and 64 years in the specified region. The data collected will solely be used for academic purposes.

The study is expected to provide a current and comprehensive update on socio-cultural factors and risky sexual behaviour influencing HIV and STI transmission in the Bolgatanga Municipality of the Upper East Region, Ghana. In addition, the outcome of this study would provide empirical data for policy consideration for the municipality's well-being and how to devise effective control strategies to minimize transmission of HIV and STIs among citizens.

I would be grateful if your outfit would approve his application to conduct his proposed study. Your kind approval is required to conduct this study and fulfill his academic obligation.

Thank you for your kind consideration.

Yours Sincerely,

AKENTEN APPIAH-MENKA UNIVERSITY
of Skills Training and Entrepreneurial Development

FACULTY OF ENVIRONMENT & HEALTH EDU.
DEPARTMENT OF PUBLIC HEALTH EDUCATION
P.O. Box 40, Asante Mampong 0209777318

Denis Dekugmen Yar (PhD)

(Academic Supervisor: ddyar@aamusted.edu.gh)

APPENDIX VII: Approval Letter from Study Area

OUR CORE VALUES
- People-Centered
- Professionalism
- Teamwork
- Innovation
- Discipline
- Integrity

Ref: GHS/UER/ORD/RES/091
My Ref. No:

GHANA HEALTH SERVICE
Your Health · Our Concern

Regional Health Directorate
Ghana Health Services
Private Mail Bag
Bolgatanga, UER
GHANA.
6th Feb. 2024
Tel: (03820) 22335
Fax: (03820) 24390
E-mail: uerrdhs@gmail.com

AKENTEN APPIAH-MENKA UNIVERSITY,
FACULTY OF ENVIRONMENTAL & HEALTH EDU.,
DEPARTMENT OF PUBLIC HEALTH EDUCATION,
P. O.BOX 40,
ASANTE MAMPONG.

Dear George Ahiaka,

RE: PERMISSION TO CONDUCT RESEARCH: SOCIO-CULTURAL FACTORS AND RISKY SEXUAL BEHAVIOR INFLUENCING HIV AND STI TRANSMISSION IN THE BOLGATANGA MUNICIPAL OF THE UPPER EAST REGION, GHANA.

The purpose of this letter is to inform you that, you have been permitted to conduct the research titled "***Socio-Cultural Factors and Risky Sexual Behavior Influencing HIV And STI Transmission in The Bolgatanga Municipal of The Upper East Region, Ghana.***".

By a copy of this letter, The Medical Director, Regional Hospital and Medical Superintendent War Memorial Hospital are entreated to support you make your study a successful one.

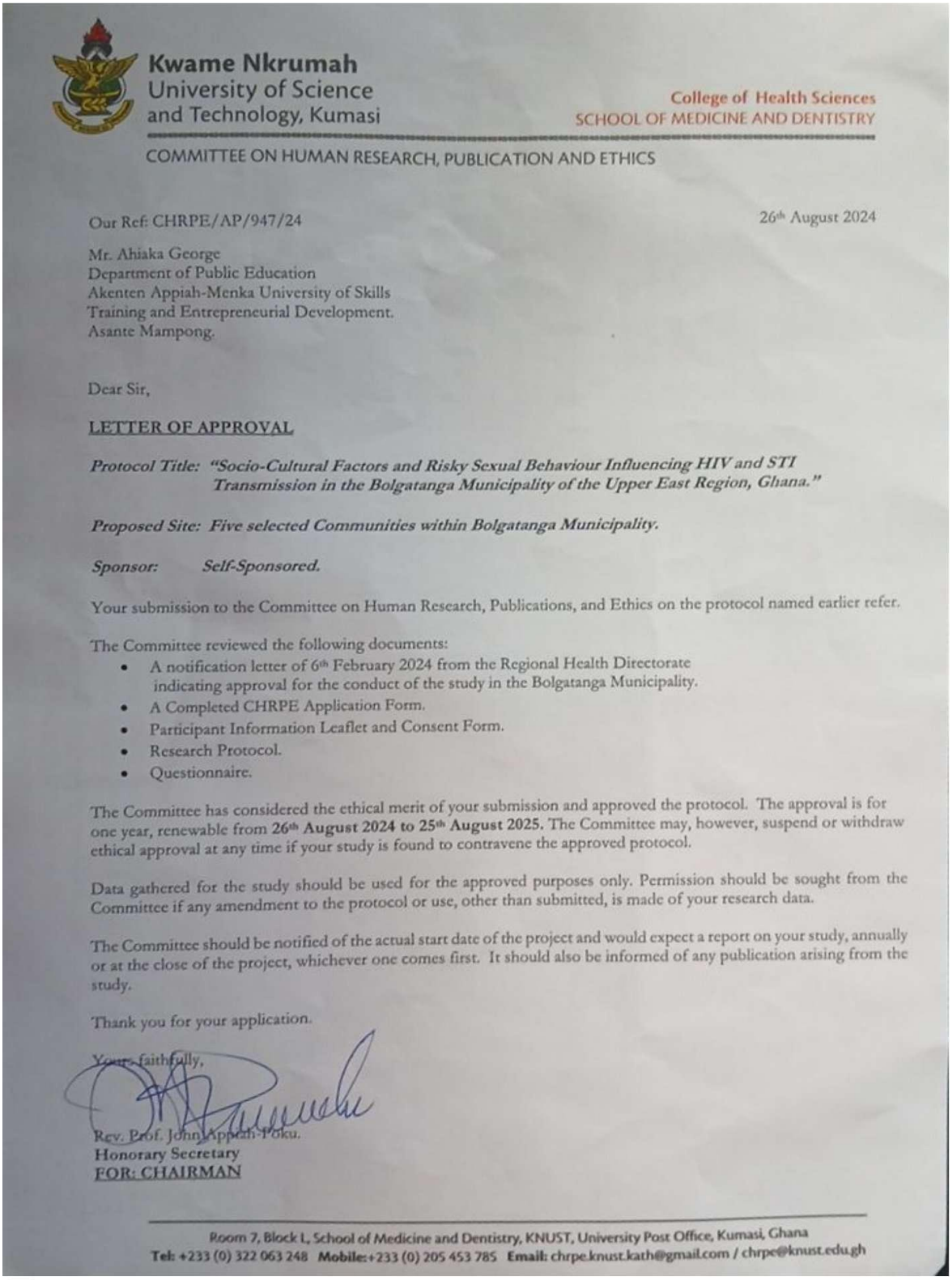
Counting on your usual cooperation

Thank You.

MR. PASCHAL DONGZUING.
DEPUTY DIRECTOR , ADMINISTRATION (UER).
For: REGIONAL DIRECTOR OF HEALTH SERVICES (UER).

Cc: The Municipal Director, Bolga Municipal.
The Regional Research officer

APPENDIX VIII: Ethical Approval



Kwame Nkrumah
University of Science
and Technology, Kumasi

College of Health Sciences
SCHOOL OF MEDICINE AND DENTISTRY

COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Our Ref: CHRPE/AP/947/24

26th August 2024

Mr. Ahiaka George
Department of Public Education
Akenten Appiah-Menka University of Skills
Training and Entrepreneurial Development.
Asante Mampong.

Dear Sir,

LETTER OF APPROVAL

Protocol Title: "Socio-Cultural Factors and Risky Sexual Behaviour Influencing HIV and STI Transmission in the Bolgatanga Municipality of the Upper East Region, Ghana."

Proposed Site: Five selected Communities within Bolgatanga Municipality.

Sponsor: Self-Sponsored.

Your submission to the Committee on Human Research, Publications, and Ethics on the protocol named earlier refer.

The Committee reviewed the following documents:

- A notification letter of 6th February 2024 from the Regional Health Directorate indicating approval for the conduct of the study in the Bolgatanga Municipality.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for one year, renewable from **26th August 2024 to 25th August 2025.** The Committee may, however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Thank you for your application.

Yours faithfully,

Rev. Prof. John Appiah-Poku.
Honorary Secretary
FOR: CHAIRMAN

Room 7, Block L, School of Medicine and Dentistry, KNUST, University Post Office, Kumasi, Ghana
Tel: +233 (0) 322 063 248 Mobile: +233 (0) 205 453 785 Email: chrpe.knust.kath@gmail.com / chrpe@knust.edu.gh