

**SCHOOL OF PUBLIC HEALTH  
COLLEGE OF HEALTH SCIENCES  
UNIVERSITY OF GHANA  
LEGON**

**UTILIZATION OF HIV TESTING AND COUNSELLING  
SERVICES BY MEN IN THE BOLGATANGA MUNICIPALITY**



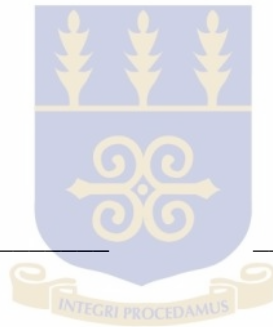
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**A DISSERTATION SUBMITTED TO THE SCHOOL OF PUBLIC  
HEALTH, UNIVERSITY OF GHANA, LEGON, IN PARTIAL  
FULFILLMENT OF THE REQUIREMENT FOR THE AWARD  
OF MASTER OF PUBLIC HEALTH (MPH) DEGREE**

**JULY, 2013**

## DECLARATION

By submitting this dissertation entitled “**UTILIZATION OF HIV TESTING AND COUNSELING SERVICES BY MEN IN THE BOLGATANGA MUNICIPALITY**”, I hereby declare that the entirety of the work contained therein is my own, original work which was supervised in accordance with the procedures laid down by the University; that I am the sole author thereof; that the sources I have used or quoted have been indicated and duly acknowledged by means of references, and that, this study has never been presented either in its entirety or in part for the award of any degree or certificate.



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## **DEDICATION**

To all my siblings: Mercy, Rachel, Ernest, and Prosper.



## **ACKNOWLEDGEMENT**

My first thanks go my academic supervisor, Dr. Amos Laar, for his guidance, time and constructive criticism despite his busy work schedule. But for him this research would not have been a success. Sir! I will always remember your favorite quote: “Knowledge shared is not knowledge halved”. I hope to continue to learn from you.

My profound gratitude also goes to the Dean, Prof. Richard Adanu and the entire staff of School of Public Health of University of Ghana, Legon, for the knowledge they imparted in us and for their moral support and encouragement.

I would also like to acknowledge my course mates, especially Mariam Bogobire and Bismark Akasoe for their encouragement and support throughout the study period.

Mention must also be made of Thomas, George, Darius, Pius and David for their invaluable assistance in data collection.

I wish to express my sincere gratitude to all my friends, especially Peter Adatara and Shirley Adombire-Naba for their moral support and pieces of advice throughout the entire period of the programme.

Finally, I wish to say thank you to all those who contributed in diverse ways to the successful completion of this study. God bless!

## ABSTRACT

**Background:** In the absence of an effective vaccine and cure for HIV, testing and counseling for HIV remains an important intervention in the control of the infection. However, utilization of this service in Ghana is very low especially among men. This study sought to determine the extent of utilization of HIV testing and counseling services among men in the Bolgatanga Municipality, and to document the reasons for their use or non-use of the service.

**Methods:** The study was a population-based cross-sectional survey. A total of 610 men, aged 18 – 59 years residing in Bolgatanga Municipality were randomly selected using multi-stage sampling technique. Data was collected through structured interviews during home visits by the use of a questionnaire over a period of two weeks.

**Results:** Majority of the respondents (99.3%) knew of a test that could identify HIV in an individual; however, 63.6% felt they were at no risk/low risk of being infected with HIV. About 89.8% of those who had heard of HIV test could locate at least one testing centre. Radio/television was the most frequent (68.4%) source of information while the hospital was the most preferred place for testing. Only 27.7% of the respondents had ever tested for HIV of which 99.4% of them had received their test results; 7.7% of men tested within the last 12 months prior to the study. Reasons given by respondents for use or non-use of testing and counseling services included socio-cultural and health service-related reasons, and personal beliefs. Educational and employment statuses of respondents were found to associated with the uptake of HIV testing and counseling services ( $p<0.001$ ) and the likelihood of testing within the next 12 months ( $p<0.05$ ).

**Conclusion:** Utilization of HIV testing and counseling services by Men in Bolgatanga Municipality was low. Low perception of HIV risk and fear of stigma and false positive results were the key reasons for not being tested. There is urgent need for formulation of pragmatic policies and strategies that can help improve uptake of testing and counseling.

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## List of Acronyms/Abbreviations

AID	Acquired Immune Deficiency Syndrome
ART	Anti-Retroviral Therapy
CDC	Centers for Disease Control and Prevention
DHS	Demographic Health Survey
GAC	Ghana AIDS Commission
GDHS	Ghana Demographic and Health Survey
GHS	Ghana Health Service
GSS	Ghana Statistical Service
HIV	Human Immunodeficiency Virus
JHS	Junior High School
MHMT	Municipal Health Management Team
MOH	Ministry of Health
MPH	Master of Public Health
NACP	National AIDS Control Programme
PLWHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother to Child Transmission
SHS	Senior High School
STDs	Sexually Transmitted Diseases
STI	Sexual Transmitted Infection
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund

## **Definitions of Terms and Concepts Used in the Study**

**Acquired Immunodeficiency Syndrome (AIDS):** This refers to the late and most advanced stage of HIV infection.

**Confidentiality:** Confidentiality is a situation in which you trust someone not to tell secret or private information to anyone else.

**Counseling:** A confidential dialogue between a client and a counselor aimed at giving the client advice and support on personal or psychological matters, usually in a professional context.

**Generalized epidemic:** This refers to HIV prevalence rate of 1% or greater in the general population (WHO).

**HIV testing:** Obtaining bodily sample for the specific purpose of performing a medical test or a number of medical tests to determine the HIV status of a person.

**HIV testing and counseling:** The process by which an individual is tested for HIV and then giving some counseling to prepare him or her emotionally for the results of the test.

**Household:** Household is defined as a person or a group of persons, related or unrelated, who live together in the same house or compound, share the same housekeeping arrangements, and eat together as a unit (GSS et al., 2009)

**Human Immunodeficiency Virus (HIV):** This is the virus that causes AIDS.

**Mother - to - child transmission:** The transmission of HIV from infected mothers to unborn babies which may occur during pregnancy, delivery or after delivery during breastfeeding.

**Post-test counseling:** Counseling provided to a client before disclosing his or her HIV test result to him as well as the moral support given immediately after the client has received the result.

**Serostatus:** Refers to “seroconvert” which is defined as the production of specific antibodies in response to the presence of an antigen (HIV).

**Seronegative:** Uninfected: after a blood test, showing no immunological evidence of infection with HIV.

**Seropositive:** Infected: after a blood test, showing immunological evidence of infection with HIV.

## CHAPTER ONE

### 1.1 Introduction

This chapter provides the introduction of the study. The chapter presents the background to the study, statement of the problem, conceptual framework, justification for the study, and objectives of the study.

### 1.2 Background to the Study

Despite the increase in access to antiretroviral therapy (ART) HIV transmission continues to spread worldwide (Corbett, Makamure, Cheung, Dauya, Matambo, *et al.*, 2007). In 2010 about 34 million people were living with HIV worldwide, an increase of 17% from 2001. About 68% of them were residing in sub-Saharan Africa (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2011). An estimated 225,478 people were living with HIV in Ghana as at 2011 with about 12,077 new infections occurring in the same year. There was a rise of antenatal care (ANC) prevalence from 2.0% in 2010 to 2.1% in 2011 (Ghana AIDS Commission [GAC], 2012).

Testing and counseling has been identified as an effective intervention in the fight against HIV transmission (Sebudde and Nangendo, 2009; Ghana Health Service [GHS], 2010). Studies have shown that there is low level of knowledge on HIV especially regarding the modes of transmission despite the high level (over 95%) of awareness of the existence of HIV (NACP/GHS, 2010). Thus, HIV testing and counseling intervention provides an opportunity for health information and promotion (Yahaya, Jimoh, and Balogun, 2010; Kakimoto, Sasaki, Kuroiwa, Vong, and Kanal, 2007). It provides an avenue for

preventing HIV-negative people from being infected and controlling the progression of the HIV in infected people by providing early health care and psychosocial support (Aho, Nguyen, Diakite, Sow, Koushik, *et al.*, 2012; Kalichman and Simbayi, 2012). Similarly, available research indicates that HIV testing and counseling facilitates access to prevention services for seronegative people such as prevention of mother-to-child transmission of HIV (PMTCT) services and medical and supportive services for seropositive individuals that can help prevent opportunistic infections and promote longer and healthier lives Joint United Nations Programme on HIV/AIDS [UNAIDS], 2002; Kakimoto *et al.*, 2007).

Research has indicated that HIV testing and counseling decreases high-risk sexual behavior and reduces the spread of sexual infections including HIV (Bollinger, Cooper-Arnold, and Stover, 2004; Bassett, 2002). Results from an exploratory study in Nairobi, Kenya, and Kampala and Masaka, Uganda, involving youth showed that among young people who had tested for HIV, most of them said they would adopt safer behaviors such as abstaining from sexual intercourse, practicing monogamy, using condoms or reducing the number of sexual partners (Horizons Program, Kenya Project Partners and Uganda Project Partners, 2001).

According to European Centre for Disease Prevention and Control [ECDC] (2010), there is strong evidence that early diagnosis of HIV infection and early initiation of treatment can result in significant improved prognosis for the individual and consequently, low morbidity, a good quality of life and a near normal life expectancy. There is evidence that

late diagnosis of HIV (CD4B/200) significantly increases the risk of death within one year of diagnosis compared to those not diagnosed late (Chadborn, Baster, Delpech, Sabin, Sinka, *et al.*, 2005; Chadborn, Delpech, Sabin, Sinka, and Evans, 2006) and higher direct healthcare costs (Krentz and Gill, 2012).

Testing and counseling is also important in the fight against HIV-related stigma and discrimination. A Ghanaian study conducted on HIV stigma and discrimination revealed that women who had ever being tested for HIV had significantly lower levels of stigmatizing and discriminating attitudes compared with those who had not tested for HIV (Tenkorang and Owusu, 2013). According to Walker (2003) HIV testing and counseling is found to be cost-effective intervention in the prevention of HIV as compared to most treatment strategies.

However, the utilization of HIV testing and counseling services in Ghana is low (Ghana Statistical Service [GSS], Ghana Health Service [GHS], ICF Macro, 2009). The 2008 Demographic and Health Survey (DHS) indicates that only 16.9% of women and 12.7% of men had ever tested and received the results, and only 6.8% of women and 4.1% of men had tested and received the results in the last 12 months (GSS *et al.*, 2009). According to Donkor (2012), though the awareness of testing and counseling is high (81%), only 23% of the respondents had tested for HIV. Fourteen percent (14%) tested voluntarily while 9% tested as a requirement for visa, blood donation, or employment.

Men's utilization of HIV testing and counseling is very crucial especially in the Ghanaian society where men are decision makers with regard to health seeking practices by household members by virtue of their status as household heads. This study therefore sought to determine the proportion of men in Bolgatanga municipality who have ever been tested for HIV and the reasons for use or non-use of HIV testing and counseling services.

### **1.3 Statement of the Problem**

The increase in the number of people living with HIV (PLHIV) partly reflects the continued large number of new HIV infections. Sub-Saharan Africa accounted for 70% of new HIV infections in 2010 (UNAIDS, 2011). According to the 2010 Sentinel Survey Report, the HIV prevalence rate for Bolgatanga increased sharply from 2.6% in 2009 to 3.8% in 2010 resulting in Bolgatanga Municipality moving from 24th position on the National Chart in 2009 to 4th position in 2010, and from 17th to 3rd position on the National Urban Sites Chart (GAC, 2012). Though the situation has improved over the last two years, the HIV prevalence rate in Bolgatanga municipality for 2011 according to the 2011 HIV Sentinel Survey Report is 2.2% which is still higher than the median prevalence rate in the region (1.5%) as well as the national median HIV prevalence rate of 2.1% (Ghana Health Service [GHS], 2012).

Ghana Demographic and Health Survey (GDHS) 2008 data indicates that a higher proportion of men tend to have multiple sexual partners compared to women (11.4% and 1.1% respectively) (GSS *et al.*, 2009). This behavior tends to expose them as well as their

partners to HIV infection (Bingenheimer, 2010; GSS et al., 2009). Meanwhile, majority of men still express their unwillingness to test for HIV (Bwambale, Ssali, Byaruhanga, Kalyango, and Karamagi, 2008). As at 2008, only 12.7% of men in Ghana had ever tested for HIV and received the results of the test (GSS *et al.*, 2009).

Since an effective vaccine against HIV has not yet been developed, HIV testing and counseling remains an integral component of prevention and care strategies (Denison, O'Reilly, Schmid, Kennedy, and Sweat, 2008) because knowledge of positive serostatus facilitates early referral for care and support and may promote behavioural changes that reduce HIV transmission (Sebudde and Nangendo, 2009). Though a couple of studies have been carried out in Ghana on HIV and Acquired Immune Deficiency Syndrome (AIDS) many of those studies have focused on awareness and practices towards HIV. Not much has been done on HIV testing and counselling use (especially among men) as a strategy for HIV prevention. To the best of my knowledge no study has been conducted in the Bolgatanga municipal regarding the proportion of men who have tested for HIV. This motivated the conduct of this survey to determine the proportion of men in the municipality who have tested for HIV and the circumstances that influence their willingness or otherwise to use the testing and counselling services.

## **1.4 Conceptual Framework**

The conceptual framework for this study is adapted from Andersen and Newman framework of health services utilization. According to the framework, an individual's access to and use of health services (in this case HIV testing and counseling service) is considered to be a function of three characteristics:

### **1. Predisposing Factors:**

Social Structure: Education, occupation, ethnicity, social networks, social interactions, and culture.

Health Beliefs: Attitudes, values, and knowledge that people have concerning and towards the health care system

Demographic: Age and gender

### **2. Enabling Factors:**

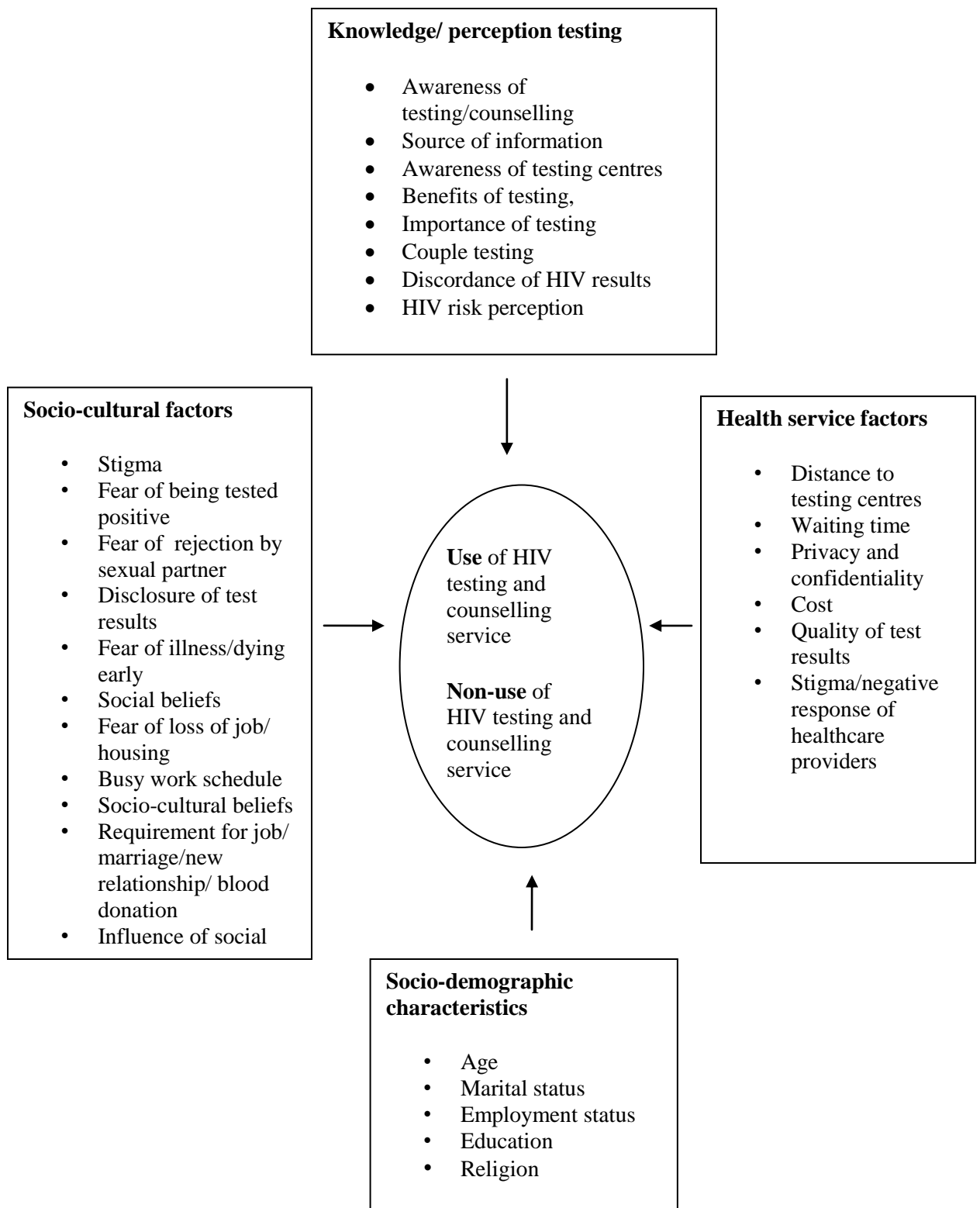
Personal/Family: The means and know how to access health services, income, health insurance, extent and quality of social relationships, etc.

Community: Available health personnel and facilities, quality of service, distance to facilities, and waiting time

### **3. Need Factors:**

Perceived need: "How people view their own general health and functional state, as well as how they experience symptoms of illness, pain, and worries about their health and whether or not they judge their problems to be of sufficient importance and magnitude to seek professional help." (Andersen, 1995)

Evaluated need: "Represents professional judgment about people's health status and their need for medical care" (Andersen, 1995)



**Figure 1: Conceptual framework for the study of utilization of HIV testing and counseling services** (source: Modified from Andersen 1995)

### **1.5 Justification for the Study**

The study is very critical to health at this point in the country's drive for the better Ghana agenda. The unwillingness of men to test for HIV has dire consequences for the public health effort to control the HIV epidemic in Ghana. HIV seropositive men who are unaware of their HIV serostatus but continue to engage in high risk sexual behaviors with multiple sexual partners are at increased risk of spreading the virus to others. Increased rate of morbidity and mortality among the populace as a result of HIV has a direct negative effect on the socio-economic development of the country. In order to tackle the problem of underutilization of HIV testing and counseling services by men, improving understanding of the factors that militate against the use of the service is very crucial. The study will therefore provide evidence for stakeholders including the government, donor agencies, health managers, and public health practitioners regarding the possible barriers to the use of HIV testing and counselling services. Thus, it will inform policy formulation and measures aimed at address those challenges.

Notwithstanding the importance of HIV testing and counselling in the prevention of HIV infection, there is dearth of empirical data on the utilization of HIV testing and counseling service by men in the Bolgatanga municipality and the reasons for use or non-use of the service. Understanding factors that impede or encourage men to test for HIV is important in developing effective intervention programmes aimed at scaling-up and promoting HIV testing and counseling among men. Findings from this survey will therefore help the Municipal Health Management Team (MHMT) to develop

interventions to improve utilization of HIV testing and counselling. Furthermore, the study will provide empirical information for future reference.

## **1.6 Objectives of the Study**

### **1.6.1 General**

To determine the uptake of HIV testing and counselling and the associated reasons for use or non-use of the service among men in the Bolgatanga Municipality

### **1.6.2 Specific**

- (1) To determine the awareness and perceptions of men regarding HIV testing and counselling
- (2) To determine the proportion of men in the Bolgatanga municipality who have ever used HIV testing and counselling services
- (3) To document reasons for use or non-use of HIV testing and counselling services by men
- (4) To assess the associations between socio-demographic attributes and use of HIV testing and counselling services

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents the literature review related to this study. Relevant studies in both developed and developing countries were reviewed with particular emphasis on the findings in developing countries. The review of literature was conducted with the use of peer reviewed articles, journals, annual reports, data sheets, theoretical research findings, edited textbooks and dissertation reports that are relevant to the research topic. Relevant studies were identified through computer searches of Medline and HINARI data bases using the combination of key terms such as HIV, AIDS, prevalence, men, test, utilization, factors and barriers. The reference lists of relevant articles retrieved were also inspected for relevant articles and explored for the review of literature.

The research literature is organized in five sections. The first section of the chapter presents a general overview of the HIV epidemic situation in Ghana. The second section discusses HIV testing and counselling including its importance while the third section reviews literature on the uptake of HIV testing and counselling services. Knowledge and perception of HIV testing and counselling is discussed in the fourth section while the fifth section discusses the factors that influence the utilization of HIV testing and counselling services with emphasis on socio-demographic, socio-cultural and health service factors.

## **2.2 General Overview of the HIV Epidemic in Ghana**

HIV was first recognized internationally in 1981 (UNAIDS, 2002). It has since been a major global health problem especially in countries in sub-Saharan Africa because of its negative impact on the social and economic gains in many countries. In Ghana HIV was first identified in March 1986 (Ghana Statistical Service [GSS], Ghana Health Service [GHS], and ICF Macro, 2003; Ghana AIDS Commission [GAC], 2012). By 1987, the National AIDS Control Programme (NACP) was established under the MOH to implement and coordinate the country's HIV/AIDS programme. In addition, a National HIV/AIDS and STI Policy was developed to guide the national response. A number of strategies were subsequently implemented to control the infection. These include maintaining a safe blood supply, ensuring safe use of needles, and disseminating information through public campaigns to change social attitudes and behavior. In 2000, Ghana AIDS Commission (GAC) was established by the government for effective resource mobilization, management, and co-ordination of HIV and AIDS activities and targeted prevention measures expected to raise awareness and promote behavioral change among the populace. The national HIV/AIDS Strategic Framework was subsequently developed in 2001 to provide goals and objectives for a national response to the disease. The framework has since been revised (Ghana Statistical Service [GSS], Ghana Health Service [GHS], and ICF Macro, 2004; Ghana AIDS Commission [GAC], 2005).

Controlling the spread of HIV is one of the major objectives in the fight against HIV infection. In Ghana, as in the rest of Africa, sexual (especially heterosexual) contact and mother-to-child transmission (MTCT) are the two most common ways HIV/AIDS

infections are spread. The focus is to significantly reduce new HIV infections among the sexually active population through the promotion of safer sexual behavior. Testing and counseling is also done for pregnant mothers at the antenatal clinic to identify those infected in order to put them on ART early enough to prevent their unborn babies from being infected (GSS *et al.*, 2004; GSS *et al.*, 2009).

The HIV epidemic status in Ghana is described as a generalized epidemic. According to the 2011 HIV Sentinel survey report, the Median HIV prevalence rate for 2011 was 2.1 per cent, which was a marginal rise of 2.0 per cent for 2010. Central Region of Ghana recorded the highest prevalence rate of 4.7% while the Northern Region recorded the least prevalence rate of 0.3%. However, the prevalence rate in 2011 ranged from 0.0% in Adibo, a rural site in the Northern Region, to 9.6% in Cape Coast (urban) in the Central Region (GHS, 2012). In 2011, approximately 225,478 adults and children were living with HIV ((30,401 children) while there were 12,077 new infections. Of the 225,478 people who were living with HIV, 100,336 were males and 125,141 were females. The estimated annual AIDS deaths for 2011 were 15,263 (GAC, 2012).

### **2.3 HIV Testing and Counselling**

HIV testing and counselling has been shown to be an effective strategy to facilitate behaviour change for HIV prevention. It provides an opportunity for health promotion thereby preventing HIV negatives individuals from contracting the infection and controlling the progression of the infection in those already infected by providing early health care and psychosocial support (Aho *et al.*, 2012). Knowledge of HIV serostatus

can motivate people to practise safer sexual behaviour so as to protect themselves and other sexual partners from being infected (Denison *et al.*, 2008; Joint United Nations Programme on HIV/AIDS [UNAIDS], 2000). Related studies have indicated that HIV testing and counseling is effective in reducing spread of HIV by reducing unprotected sexual intercourse among individuals who have received testing and counseling. A randomized trial to determine the efficacy of HIV testing and counseling in reducing unprotected sexual intercourse among individuals and sex partners in three countries (Kenya, Tanzania and Trinidad) by the Voluntary HIV-1 Counseling and Testing Efficacy Study Group (2000) revealed a significant reduction in the proportion of individuals reporting unprotected sex with non-primary partners more for participants receiving testing and counseling than those receiving health information (that is, 35% reduction with testing/counseling as against 13% reduction with health information among men, and 39% reduction with testing/counseling as against 17% reduction with health information among women).

Couple HIV testing and counseling is an effective behavioral intervention in the prevention of HIV transmission among couples (Painter, 2001). Research has shown that providing testing and counseling to a couple together is an effective intervention for reducing the spread of HIV as compared to counseling the female partner alone (Allen, Meinzen-Derr, Kautzman, Zulu, Trask, *et al.*, 2003) because most new HIV infections in Africa are acquired from cohabiting heterosexual partners (Allen *et al.*, 2003; Painter, 2001; Trask, Derdeyn, Fideli, Chen, Meleth, *et al.*, 2002).

Testing and counseling does not only provide an avenue for health education and behavior change but also allows people who are tested seropositive to seek care and support (Higgins, Galavotti, O'Reilly, Schnell, Moore *et al.*, 1991) including access to ART (Kawichai, Celentano, Chariyalertsak, Visrutaratna, Short, *et al.*, 2007). According to UNAIDS Voluntary Counseling and Testing Technical update (2000), people who test HIV seropositive can benefit from timely medical care and interventions to treat and/or prevent HIV associated illnesses. There is evidence that treatment has improved survival rates dramatically, especially since the introduction of highly active antiretroviral therapy (HAART) in 1995 (Palella, Deloria-Knoll, Chmiel, Moorman, Wood, *et al.*, 2003). In a systematic review and meta-analysis of 11 studies on the effect of ART on tuberculosis (TB) incidence among HIV - infected patients, ART was found to reduce TB incidence by 65% (Suthar, 2012).

Several countries in sub-Saharan Africa have experienced a remarkable expansion of HIV testing and counselling services and the emergence of new strategies. In the 1990s, HIV testing was conducted mainly in client-initiated centres. In recent times, however, provider-initiated testing strategies and outreach programmes have been implemented in many countries including Malawi and Botswana (Creek, Ntunye, Seipone, Smith, Mogodi, *et al.*, 2007). Similarly, national testing and counselling campaigns have been implemented in Burkina Faso, South Africa and Uganda while Rwanda and Zimbabwe have initiated innovative approaches in which tests are offered at workplaces (Feeley, Collier, Richards, Van der Borgh, and Rinke de Wit, 2007; Corbett *et al.*, 2007) through mobile units or at people's homes (Negin, Wariero, Mutuo, Jan, and Pronyk, 2009). This

is particularly important because in many African settings health services are accessed only when there is a specific need, and only when it is perceived to be serious (Burns, Imrie, Nazroo, Johnson, and Fenton, 2007). The Centers for Disease control and Prevention (CDC), in 2003, reported that persons tested late in the course of their infection were more likely to be black or Hispanic and to have been exposed through heterosexual contact. According to the report, 87% received their first positive HIV test result at an acute or referral medical care setting, and 65% were tested for HIV antibody because of illness.

In 2006, CDC issued recommendations for routine HIV testing in all health-care settings with HIV prevalence of 0.1% or greater for all persons aged 13 to 64 years, regardless of risk (Centers for Disease Control and Prevention [CDC], 2006). The government of Ghana, supported by the WHO, UNAIDS, UNICEF and other organizations, has committed itself to the fight against HIV by issuing a strategic framework and supporting HIV prevention activities including the promotion of testing and counselling (Centers for Disease Control and Prevention [CDC], 1995; GAC 2003; GAC, 2005). All these efforts are intended to reach individuals earlier in the process of infection so as to provide the needed counselling, prevention and treatment services.

#### **2.4 Uptake of HIV Testing and Counselling**

The use of HIV testing and counselling globally is very low in spite of increased accessibility of testing and counselling services and the fact that the test is conducted free of charge in government-owned health facilities in many developing countries (Obermeyer

and Osborn, 2007; Angotti, Bula, Gaydosh , Kimchi , Thornton, *et al.*, 2009). As a result, many people living with HIV tend to be diagnosed late, after their immunity is compromised (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2009).

In comparison of data from population-based surveys conducted in 2005 and 2006 from 22 countries including 16 countries in sub-Saharan Africa, a median of 10% of women and men in the general population reported having ever tested for HIV and received the results, and a median of 4% and 5% of women and men respectively reported having tested and received the results 12 months preceding the survey (UNAIDS, 2009). It is estimated that 20%- 30% of HIV infected individuals in developed countries are unaware of their HIV serostatus while approximately 80% of people living with HIV in low and middle income countries are unaware of their HIV serostatus (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2007). A study by Bateganya, Abdulwadud, and Kiene (2007) has shown that only 10% of HIV infected persons know their HIV serostatus. However, in a Ugandan study, the prevalence of HIV testing among men was found to be 23.3% (Bwambale *et al.*, 2008). A number of similar studies also reported low uptake of HIV testing and counselling services especially among men. For instance, a study in Eastern Cape Province in South Africa on testing and counselling use indicated that only 17% of men had HIV test (Hutchinson and Mahlalela, 2006) while 11% of men were reported to have tested for HIV in a study in Malawi (de Graft *et al.*, 2005). Furthermore, a Nigerian study found that majority of the participants (98.6%) has never been tested for HIV (Iliyasu, Abubakar, Kabir, and Aliyu, 2006). An Ethiopian study which utilized data from Ethiopian Demographic Health Survey (EDHS) 2005, revealed

that 21.9% of urban and 2.6% of rural men had tested for HIV through testing and counseling with most of them having received their HIV test results (Leta, Syndøy, and Fylkesnes, 2012).

According to He, Zhang, Yao, Tian, Zhao, et al. (2009) out of 2,690 participants in a study aimed at determining the knowledge, attitudes and practices of testing and counseling, only 62 (2.3%) had tested for HIV; 19 of them underwent the testing at a testing and counseling centre . In a related study only a few (35%) of the respondents had tested for HIV although the respondents were aware of the benefits of HIV testing and counseling (Charles, Kweka, Mahande, Barongo, and Shekalaghe, 2009). A study conducted in Bushenyi District of Uganda by Nuwaha, Kabatesi, Muganwa, and Whalen (2002) reported that 38(17.4%) of the 219 people interviewed had ever undergone an HIV test of which 36 of them had received their test results. Similarly, in a study conducted in Cape Town, South Africa, Kalichman and Simbayi (2003) reports that 44% of the participants had been tested for HIV of which more than 1 in 3 of those tested were not aware of their test results even though at the time rapid testing with same day results was in place.

The picture is not different in Ghana. According to the 2008 GDHS, 70% of women and 75% of men aged 15 – 49 years knew where to locate a testing centre, however, only 16.9% and 12.7% of women and men respectively had ever tested and received the results of the test and 6.8% of women and 4.1% of men had tested and received the results in the last 12 months (GSS *et al.*, 2009). A study to determine HIV testing and

counselling use among men in the University of Ghana revealed that only 19% of the respondents had tested for HIV (Fiaveh, Okyerefo, and Fayorsey, 2011).

Denison, McCauley, Dunnett-Dagg, Lungu, and Sweat (2009) in their study on HIV testing among youth reported that 28% reported that they plan to test for HIV within the next 12 months and most of the youth answered that they wanted to know their status or to free their mind when they were asked why they wanted to undergo testing and counseling. However, according to Alemayehu (2010), people will not accept HIV testing unless they are planning for marriage or to travel abroad. A study on acceptability and challenges of implementing testing and counseling in rural Zimbabwe revealed that people felt the clinic was an appropriate testing and counseling centre because the clinic is centrally located within the community thereby making it accessible to most community members (Chirawu, Langhaug, Mavhu, Pascoe, Dirawo *et al.*, 2010). A related study by Kassler, Dillon, Haley, Jones, and Goldman (1997) revealed that rapid, on-site HIV testing with same day results and counseling was feasible, preferred by clients and resulted in significant increase in the number of persons learning their HIV status (4% increase for uninfected and 16% increase for infected clients) without decreasing the effectiveness of or increasing the cost of testing and counseling.

## **2.5 Awareness and Perception of HIV Testing and Counselling**

The utilization of HIV testing and counselling is partly influenced by one's knowledge and perception regarding testing and counselling for HIV. According to Sherr, Lopman, Kakowa, Dube, Chawira, *et al.* (2007), knowledge positively influences the uptake of

HIV testing and counselling services. Though HIV testing and counselling is well established in the health care system, many people have misconceptions and inadequate knowledge regarding the service. According to Illiyasu *et al.* (2006) more than half (55%) of the respondents knew of a test that identifies individuals with HIV, however, only 26% knew where they could have the test. Lack of information about where to obtain the test and what the results might turn out to be are cited by Deblonde, De Koker, Hamers, Fontaine, Luchters, *et al.* (2010) as barriers to uptake of HIV testing and counseling services.

A Ghanaian study on knowledge, attitudes and practices of voluntary counseling and testing for HIV among university students showed that majority (81%) of the respondents had heard about testing and counseling for HIV (Donkor, 2012). Among those who had heard of about testing and counseling, 48% of them had the information through the mass media, 18% through health personnel, and 11% through their friends/peers. Regarding the importance of testing and counseling, majority (70%) of the respondents indicated that testing and counseling helps one to know one's HIV status, 29% mentioned that testing will help individuals who test positive for HIV to seek medical care, 6% indicated it will protect one from HIV infection, and 3% mentioned it help prevent transmission of HIV if one was tested HIV positive (Donkor, 2012). A related study in Tanzanian on evaluation of uptake and attitudes to voluntary counseling and testing among health care professional students reported that the respondents indicated sources of information on testing and counseling to include radio and television, friends, schools, church seminars, and through visiting testing and counseling centers (Charles *et al.*, 2009).

Studies have shown that persons willing to test for HIV are more likely to perceive themselves to be at high risk (Fylkesnes and Siziya, 2004; Wolff, Nyanzi, Katongole, Ssesanga, Ruberantwari, *et al.*, 2005). However, HIV awareness does not always translate into perception of individual risk (Burns *et al.*, 2007). A study of knowledge, attitudes and practices of voluntary counseling and testing among rural migrants in Shanghai, China, revealed that out of 2,690 participants, 80% knew HIV infection was diagnosed through a blood test and 46.5% had ever heard of voluntary counseling and testing, however, only 3.5% felt they were likely to be infected with HIV now or in the future (He *et al.*, 2009). A related study by Bwambale *et al.* (2008) revealed that majority (80.1%) of men is aware about HIV testing and counselling programme in their area. The study also showed that most of them knew of at least a testing centre and felt HIV testing was important, however, only 9.1% of them perceived themselves to be at high risk of HIV. Besides, Fiaveh *et al.* (2011) indicated that 2 of 5 men did not believe that they were at risk of contracting HIV. According to Kalichman and Simbayi (2003), individuals who had not been tested for HIV and those tested but who did not know their results held significantly more negative testing attitudes than individuals who were tested, particularly people who knew their test results.

A study by Lamessa (2005) on utilization of HIV testing and counseling services, perceived barriers and preferences of adolescents in Harar town in Ethiopia revealed that majority of adolescents (92.2%) had heard about HIV testing and counseling, with most frequent source of information being radio/television (59.2%); however, majority of the

respondents (83.3%) felt they were at either no risk or low risk of being infected with HIV. Similarly, findings from a study by Nuwaha *et al.* (2002) indicate that most of the respondents felt they were at no risk or low risk of being infected with HIV. Their intention to test for HIV in the next one year was positively associated with perceived risk of HIV infection. The study also found that only 21.9% of the respondents had ever been tested for HIV. Low risk perception and fear of stigma and discrimination if tested seropositive were found to be common perceived barriers to testing and counseling.

A couple of studies have shown that people have positive perception towards testing and counselling as majority of the respondents indicated their readiness to test for HIV (Irungu, Varkey, Cha, and Peterson, 2008; Illiyasu *et al.*, 2006). The majority of the respondents felt HIV testing and counselling was important (Irungu *et al.*, 2008). However, on the issue of discordance of HIV test results among partners, over half of respondents in a study by Bwambale *et al.*, 2008, did not believe that there could be discordant HIV test results.

Perceived positive outcomes of testing and counseling are found to encourage people to accept HIV testing. In a study conducted on factors influencing acceptability of voluntary counseling and testing for HIV in Bushenyi District of Uganda, Nuwaha *et al.*, 2002, indicated that respondents in focus group discussions mentioned that positive consequences of testing and counseling would encourage testing. They mentioned that testing will encourage positive living like stopping smoking and drinking, generally caring about one's health, planning for one's future regarding marriage and having children, planning treatment, and practicing safer sex or abstinence among others if tested

negative. In the contrary, some anticipated negative consequences of testing that would discourage HIV testing as mentioned by the respondents included loss of hope leading to destructive behavior; early death through worries, and sometimes suicide; stigma from society and rejection from friends, relatives, and sexual partners. According to Burns et al. (2007) people feel one would face social isolation, and even violence, if their HIV status were disclosed.

## **2.6 Factors influencing the utilization of HIV Testing and Counselling Services**

Studies have shown that a variety of factors influence the use of HIV testing and counselling services. These factors include socio-demographic, socio-cultural and health service factors.

### **2.6.1 Socio-demographic factors**

A study in Zimbabwe revealed that knowledge and education influence positively HIV testing and counselling use (Sherr *et al.*, 2007). A related study on women reported that people who have obtained more years of education are more likely to use HIV testing and counselling services (de Walque, 2006), because such people may have more understanding of the benefits of such services. Similarly, Gage and Ali, 2005, indicated that secondary or higher education is associated with an increased likelihood of HIV testing. A South African study revealed that individuals who had undergone HIV testing had more years of education than people who had not tested, although the difference between means was less than one year of education. No other significant differences in demographic characteristics were found between people who had tested and people who had not tested (Kalichman and Simbayi, 2003). However, a study on acceptance of

testing and counseling and treatment for HIV among pregnant women in Kumasi, Ghana, reports that women with secondary education were 88% less likely to accept HIV testing as compared to those with no/primary education. The study showed that women who have ever tested for HIV were 95% less likely to accept testing (Holmes, Preko, Bolds, Baidoo, and Jolly, 2008.).

A number of studies have indicated that age influences the use of testing and counselling services. According to Hutchinson et al., 2006, older men ( $\geq 30$  years) are more likely to use testing and counselling services than younger men. However, a similar study by Fiaveh *et al.* (2011), reported that younger persons (20-29 years) are more likely to use the service. The study also indicated that level of education, religion, marital status and social status have no significant influence on the use of HIV testing and counselling by men. A cross-sectional survey on factors affecting voluntary HIV counseling and testing among men in Ethiopia revealed that HIV test rates in rural areas were higher among younger men ( $\leq 47$  years) and those of higher socio-economic status while Muslim was inversely associated with use of testing and counseling service (Leta *et al.*, 2012). A Ugandan study on HIV testing and counselling also showed that men aged 35 years and below were more likely to use HIV testing and counselling services than older men. The study also revealed that occupation is associated with HIV testing use among men (Bwambale et al., 2008). Similarly, a study conducted in Uganda on factors associated with self-reported HIV testing among men indicated that older men were less likely to test, and if not tested, were less willing to test for HIV (Gage and Ali, 2005).

A study on HIV testing among youth in Zambia found age as the only socio-demographic variables that is strongly associated with HIV testing and counseling use with younger respondents less likely to have plans to test than older respondents (Denison *et al.*, 2009). Also, Nyblade, Menken, Wawer, Sewankambo, Serwadda *et al.* (2001) reported that younger age is associated with lower use of HIV testing and counseling services.

Research has shown that gender, working venue, having multiple sexual partners, and knowledge of testing and counseling are independently associated with uptake of testing and counseling (He *et al.*, 2009). According to Stein and Nyamathi (2000), men are more likely to underestimate their risk for HIV infection as compared to women notwithstanding the fact that men report more high-risk sexual behavior. In a study on factors affecting HIV testing and counseling among men, it was revealed that being Muslim is inversely associated with use of testing and counseling service (Leta *et al.*, 2012).

### **2.6.2 Socio-cultural factors**

The behaviour and practices of people is largely influenced by the socio-cultural setting they live. Over the years HIV-related stigma and discrimination has been a major obstacle to HIV testing and counselling use, treatment, care and support. Findings from studies have indicated that more than half of HIV positive respondents have experienced stigma (Odindo and Mwanthi, 2008; Li, Wang, Williams and He, 2009). HIV related stigma is found to be associated with delays in testing and treatment throughout the developing world (Ford, Wirawan, Sumantera, Sawitri, and Stahre, 2004; Rankin,

Brennan, Schell, Laviwa, and Rankin, 2005. The perception of HIV as predominantly a sexually transmitted disease and a deadly disease is the main cause of fear and stigma which impacts negatively on accessing testing and counseling services. Presenting for an HIV test itself carries an implication of blame that one only undergoes testing if they consider themselves susceptible because of their behavior (Burns *et al.*, 2007).

A study in South Africa showed that perceived stigma was the reason for low utilization of HIV testing and counselling services among men and women (Hutchinson and Mahlalela, 2006). Other studies have cited HIV-related stigmas as the most important barrier to seeking HIV testing and counselling (Wolfe, Weiser, Bangsberg, Thior, Makhema, et al., 2006; Babalola, 2007; Bwambale et al., 2008; Khumalo-Sakutukwa, Morin, Fritz, Charlebois, van Rooyen, et al., 2008). Moreover, stigma was reported to be the primary barrier to HIV testing and counselling by men (Wolff *et al.*, 2005; Morin, Khumalo-Sakutukwa, Charlebois, Routh, Fritz, et al. 2006; Sherr *et al.*, 2007; Irungu *et al.*, 2008). An Indian study on HIV testing revealed that 20.2% of the males and 18.1% of the females seeking testing and counseling reported discrimination in more than one area including family relations, work place and treatment availability while 2.3% and 1.0% of the males and females respectively did not perceive any discrimination as a result of their HIV status. Most of the respondents did not answer questions related to that aspect (Madhu, Kamalika, Meenakshi, Sharad, and Vibhuti, 2009). According to Bwambale et al. (2008), men prefer to go to distant clinics for HIV testing for fear of meeting familiar people in HIV testing centres within their locality. A study conducted in the US reported that 38% of a US national sample of adults indicated that they would be very concerned

about stigma if they tested positive for HIV, and 44% of these people said that stigma influences their testing decisions (Herek and Capitano, 1999). In a related study more than one third of all respondents reported that concerns about AIDS stigma would affect their decision to be tested for HIV in the future (Herek, Capitano and Widaman, 2003).

Stigma does not only influence the use of HIV testing and counselling but also the adherence to ART among HIV-infected persons. A study in the United States of America reported that patients with high stigma concerns were more likely not to stick to their treatment regimen (Dlamini, Wantland, Makoae, Chirwa, Kohi, *et al.*, 2009). Ostermann, Reddy, Shorter, Muiruri, Mtalo, *et al.* (2011), reports that stigma and fears of testing and test disclosure are major barriers to testing and counselling. According to de Wit and Adam (2008), fear of the consequences of testing seropositive (discrimination and rejection) hinders the uptake of HIV testing and counseling service while persons who perceive more benefits from testing appear more likely to test for HIV. Similarly, a qualitative research on perceived barriers to HIV testing among sun-Saharan African migrants in Belgium reports that factors such as fear of positive test results and its associated personal and social consequences, lack of information, and denial of HIV risks are barriers to HIV testing (Manirankunda, Loos, Alou, Colebunders, and Nöstlinger, 2009). However, a Kenyan study reported fear of partner's reactions as the most important barrier to utilization of testing and counselling services by women (Maman, Mbwambo, Hogan, Kilonzo, and Sweat, 2001).

Grinstead, Gregorich, Choi, Coates; Voluntary HIV-1 Counselling and Testing Efficacy Study Group (2001) explored the social consequences of HIV testing and counseling by examining the incidence of positive and negative life events at the first follow-up ( $\approx 7.3$  months) after recruitment of respondents. The authors compared the incidence of positive and negative life events between those who were randomly assigned to HIV testing and counseling versus health information (HI); those who tested seronegative and those who tested seropositive; and those who disclosed their serostatus and those who did not. It was revealed that the occurrence of most negative life events was rare (0 - 4%) while positive life events were more common (17- 39%). Those assigned to HIV testing and counseling were no more likely to experience negative life events than those who were assigned to HI. For individuals, positive serostatus was associated with increased support from health professionals, the break-up of a marriage and being neglected or disowned by their family while disclosure was associated with strengthening of a sexual relationship except for HIV-seropositive women. They concluded that these findings, in combination with findings supporting the efficacy and cost-effectiveness of HIV testing and counseling, support the dissemination of testing and counseling with appropriate support services in developing countries

A study conducted by Spielberg, Kurth, Gorbach, and Goldbaum (2001), indicated that individuals who do not consider themselves to be at risk or who fear testing positive or the consequence of testing positive are less likely to test for HIV. The study also revealed routine testing to be most important reason indicated by the respondents for testing for HIV followed by having been at risk. Findings from a qualitative research conducted in

two cities (Sikasso and Bamako) in Mali, showed that a large number of the respondents did not believe in the existence of HIV. Some people lacked confidence in the competence of the testing personnel and expressed fear of stigma in the community if tested positive for HIV (Castle, 2003).

A Ugandan study revealed that planned marriage/new relationship, distrust of sexual partner, and illness/death of a partner are some of the reasons associated with HIV testing (Muller, Barugahare, Schwartlander, Byaruhanga, Kataaha, *et al.*, 1992). A related study found that the most common reason for testing for HIV among the youth of Jijiga town was to know their HIV status (61.6%) while fear to get the results was the most reported reason for not testing for those who had not tested (Zenebu, 2005). According to Downing *et al.* (2001), peer encouragement and support is an important behavioral factor associated with HIV testing while fear of infection and stigma of HIV or positive diagnosis are important barriers to HIV testing and counseling use. Similar studies have indicated that relational and individual factors are strongly correlated with HIV testing and counseling use. A research on HIV testing among adolescents in Ndola, Zambia, revealed that discussing HIV testing with family members, sex partners or friends is each associated with plans to test for HIV (Denison *et al.*, 2009). In a related study by Nuwaha *et al.*, 2002, about two-thirds of the respondents said their decision to test for HIV is likely to be by themselves. However, some people mentioned that their decision to test is likely to be influenced by social relations and other people such as spouses, sexual partners, prospective marriage partners, relatives, friends, health workers/counselors,

religious leaders, political leaders and those that have undergone testing and counseling in the past

According to Nuwaha *et al.*, 2002, some reasons mentioned by respondents for undergoing VCT included showing symptoms of AIDS; loss of sexual partner; for marriage; mandatory requirements like joining the army, when one is to get a scholarship, when demanded by a sexual partner, and after undergoing various risk behaviors such as unprotected sex with somebody you do not trust, undergoing blood transfusion, and after being involved in a road traffic accident.

### **2.6.3 Health-service factors**

People have cited the issue of cost and transportation as some of the reasons why they have not tested for HIV (Obermeyer and Osborn, 2007). A study in Kigali and Lusaka, has shown that one-quarter of the respondents cited lack of money as a factor that hinder them from accessing testing and counselling services, though at the time of the survey testing in government health facilities was free (Kelley, Karita, Sullivan, Katangulia, Chomba, *et al.*, 2011). Also, lack of access to testing centres and poor quality of testing and counselling services in developing countries act as barriers to HIV testing and counselling (Joint United Nations Programme on HIV/AIDS [UNAIDS], 2001; Bwambale *et al.*, 2008). Another important health service factor that acts as an obstacle to testing and counselling is lack of privacy and confidentiality. A number of studies indicate that confidentiality is often compromised in established practices in health service. In a study on AIDS – related discrimination, 34% of the respondents reported

breaches of confidentiality by health care professionals (Paxton, S., Gonzales, G., Uppakaew, K., Abraham K.K., Okta S., *et al.* 2005). Related studies have shown that perception of how confidentiality is handled during the testing and counselling process influences the willingness of clients to be tested (Bwambale *et al.*, 2008; Fylkesnes and Siziya, 2004; Burns *et al.*, 2007). According to Chirawu *et al.*, 2010, people prefer testing personnel to come from outside their community due to the perception that local clinic staffs do not often respect confidentiality. People however appreciated having access to testing close to home. Both men and young people found the clinic a less acceptable testing and counseling centre as compares to women.

A study by van Dyk and van Dyk (2003) cited shortages of counselors, long lines, lack of privacy, no trust in the health care system or fearing a breach of confidentiality, and fear of rejection as factors hindering the use of HIV testing and counseling services. There are also reports of discrimination against HIV patients in health care settings. Studies in India reported health services as the predominant setting in which discrimination occur (Mulye, Raja, Menon, Pereire and Barnes, 2005; Marfatia, Sharma, and Modi, 2007). According to Nuwaha *et al.* (2002), some barriers to testing and counseling mentioned by respondents in their study on influencing acceptability of voluntary counseling and testing for HIV include long distance to testing centers, high cost of services, poor perceived quality of care, long waiting time before testing, confidentiality and secrecy in handing of the results, and the danger of labeling one HIV positive whereas he/she is not HIV positive. Manirankunda *et al.* (2009) also reported fear of stigma and negative response from healthcare providers are barriers to HIV testing.

Evidence from part of a longitudinal study in rural Malawi where a door-to-door rapid blood testing for HIV was offered to the respondents indicates that the vast majority of those offered the HIV test in their homes agreed to be tested and to receive their results immediately. Respondents found door-to-door HIV testing convenient and confidential, and the rapid blood test, credible. The researchers concluded that cost, accessibility and threats to confidentiality and privacy in local health facilities may be more important barriers to VCT than fear (Angotti *et al.*, 2008). In a study conducted in Cambodia to assess whether a difference exists in provider trust levels, it was revealed through focus group discussions and household surveys that people trusted public providers for their skills and abilities, and for an effective referral system, and believed that public providers were honest, sincere and explained the status of the disease to clients. However, the respondents trusted private providers for being very friendly and approachable, extremely thorough and careful, easy to contact, and gives room for deferment of payment in a situation where a client does not readily have money (Ozawa and Walker, 2011). In a study on the influence of antiretroviral therapy on uptake of HIV testing, Warwick, 2006, reported that high cost of existing retroviral medication is a barrier to HIV testing and counseling utilization.

## **CHAPTER THREE**

### **MATERIALS AND METHODS**

This chapter describes the materials and methods that were employed for this study. According to Burns and Grove, 2001, research methods refer to “the strategy of the study, from identification to final data collection”. A description of the research design, research setting, variables, study population, sampling, and data collection techniques and instrument are given. Training of research assistants, pre-test of questionnaire, quality control, data processing and analysis, and ethical consideration relating to the study are also given.

#### **3.1 Research design**

A descriptive population-based cross-sectional survey design employing quantitative method for data collection was used for this study. This research design was chosen taking into consideration the limited period of time available for the study. It is a design that can measure multiple variables at a particular short period of time.

#### **3.2 Research Setting**

The study was conducted in Bolgatanga Municipality. Information on sub-section 4.2.1 through sub-section 4.2.91 was taken from [www.ghanadistricts.com](http://www.ghanadistricts.com) and the Composite Budget of the Bolgatanga Municipal Assembly for the 2012 Fiscal year.

##### **3.2.1. Establishment**

The Bolgatanga Municipal Assembly with its capital- Bolgatanga was established by (LI) 1797 of 2004. Bolgatanga is also the capital town of the Upper East Region.

### **3.2.2 Location & Size**

The Assembly is located at the center of the Upper East Region (Fig. 2) and is bordered to the north by the Bongo District, to the south and east by Talensi-Nabdam District and to the west by the Kassena-Nankana East District. It occupies a land area of 729sq km with a tropical climate of two distinct seasons, namely wet season (May - October) and a dry season (October – April).

### **3.2.3 Structure of the Assembly**

It is divided into three (3) administrative zones which are; Bolgatanga, Zuarugu and Sumbrungu-Sherigu zonal councils.

### **3.2.4 Communities in this municipality**

The main communities in addition to Bolgatanga include Tindonsobulugu, Yarigabisi, ZuarunguDachio, Gambibigo-Azuabisi, and Kumbosigo. Others include SheriguDorungu-Agobgabisi, Zaree, and Zonno. No map is readily available indicating these communities.

### **3.2.5 Demographics**

The indigenous ethnic group in the Municipality is Grunis with migrant settlers like the Dagombas, Akans, Ewes, Yoruba, and Gas among others. The population of the Municipality was recorded as 131,550(Source: 2010 Population and Housing Census, GSS).

### **3.2.6 Climate and Vegetation**

The climate is tropical with a rainy season from May to October and a long dry season with virtually no rainfall from October to April. Mean annual rainfall is 950mm. The most common economic trees are the shea nut, dawadawa, baobab and acacia.

### **3.2.7 Topology & Drainage**

The municipality has gentle slopes ranging from 1% to 5% with some isolated rock outcrops and some uplands which have slopes over 10%. It falls within the Birimian, Tarkwaian and Voltarian rocks of Ghana. There is ample evidence of the presence of minerals especially gold.

### **3.2.8 Economy**

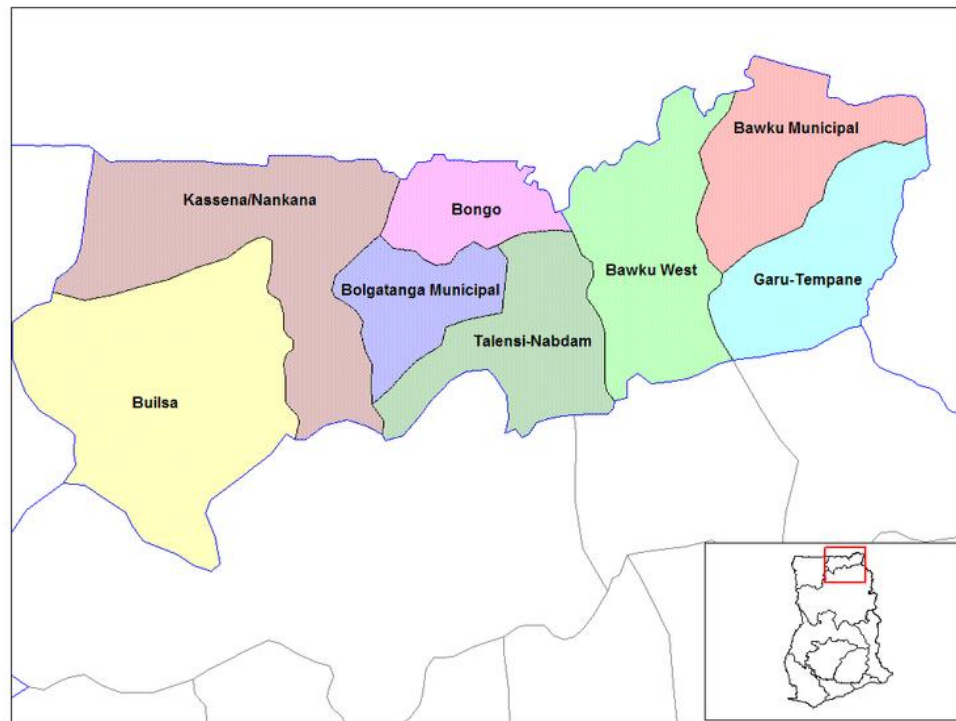
The economy of the Bolgatanga Municipality can be classified into primary, secondary and tertiary sectors. The primary sector activities are predominantly agriculture in nature. The secondary sector is dominated by Small – Scale Industrial Enterprise activities, whilst the tertiary sector has to do with the provision of services. All these sectors contribute towards the Gross Domestic Product and labor employment of the district.

### **3.2.9 Educational Institutions**

The Municipality has both public and private educational institutions with a teacher/pupil ratio in the public school of 1:56 and 1:28 for the private school.

### **3.2.10 Health Facilities**

The Bolgatanga Municipality has one (1) Regional Hospital, six (6) Health Centers, seven (7) Clinics, eight (8) CHPS Compounds, one (1) private hospital and one (1) private clinic. The Regional Hospital also serves as a referral hospital for the whole region. The total number of health personnel in the Municipality is inadequate. The Doctor/Patient ratio is 1:30,534 whilst the Nurse/Patient ratio is 1:734.



**Figure 2: Map of Upper East Region showing the location of BMA**

### **3.3. Variables for the study**

#### **3.3.1 Outcome variable**

The outcome variable for this survey is HIV testing and counselling service use. HIV testing and counselling service use is referred to the process of having undergone HIV testing and counselling in HIV testing and counselling centre. It will be measured in terms of three elements – testing, post-test counselling, and receiving test results. To be considered having fully used the service one should have passed through the three steps. Data for HIV testing and counseling service use will be dichotomous, Yes (have ever undergone HIV testing and counseling) and No (never underwent HIV testing and

counseling). Data on those who have ever used the service will also be dichotomous, Yes (Have tested within the last 12 months) and No (Have not tested within the last 12 months)

### **3.3.2 Explanatory variables**

The independent variables for this study were selected based on the conceptual framework and prior empirical studies. They include the following:

- Awareness and perception of HIV testing and counselling (awareness of testing and counselling, source of information, awareness of testing centres, benefits of testing, perceived importance of testing, couple testing, discordance of HIV results, HIV risk perception).
- Socio-demographic characteristics (age, marital status, type of marriage, religion, education, and employment status).
- Socio-cultural reasons/persona beliefs (stigma/discrimination, fear of being tested HIV positive, fear of rejection by sexual partner, disclosure of test results, fear of dying early, fear of falling ill early, fear of loss of job, fear of loss of housing, busy work schedule, socio-cultural beliefs, requirement for employment, marriage/new relationship or blood donation, influence of social relations).
- Health service – related reasons (distance to testing centres, waiting time, stigma and negative response by healthcare providers, privacy and confidentiality, cost of service, quality of test results)

For awareness and perception of HIV testing and counselling, awareness was dichotomous , i.e., Yes (Have heard about testing and counselling) and No (Have not heard about testing and counselling), source of information was categorized into 1 if “Relatives”, 2 if “Friends”, 3 if “School teacher”, 4 if “Health worker/educator”, 5 if “Radio/ television”, 6 if “Film/video”, 7 if “ News paper/public poster”, 8 if “ Church/mosque”, 9 if “other methods”; awareness of testing and counselling centres is categorized into 1 if “Hospital”, 2 if “Clinic/Health centre”, 3 if ‘Private laboratory”, 4 if “Don’t know”; importance of testing is categorized into 1 if “Not important”, 2 if ‘Somewhat important”, 3 if “Important”, and 4 if “Very important”; benefits of testing is categorized into 1 if “Don’t know”, 2 if “Will facilitate early treatment/support”, 3 if “Will prevent spread of HIV to partner/partners” 4 if “Will prevent HIV associated illnesses”, 5 if “others”; discordance of HIV results will be dichotomous – Yes (aware of possible discordance of results), No (Not aware of possible discordance of results); couple testing will be categorized into 1 if “Not important”, 2 if “Somewhat important”, 3 if “Important”, 4 if “Very important”; HIV risk perception is categorized into 1 if ‘Not at risk”, 2 if “Have low risk”, 3 if “Have high risk”.

For the socio-demographic reasons, respondent’s age was measured at last birthday in years. Education was categorized into 1 if “No formal education”, 2 if “Primary education”, 3 if “Middle School/JHS”, 4 if “Technical School/SHS”, 5 if “College/university”; marital status is categorized into 1 if “Never married”, 2 if “Married”, 3 if “Divorced”, 4 if ‘Widowed/separated”, 5 if “Co-habiting”; religion will be classified into 1 if “Atheist (no religion)”, 2 if “Christianity” , 3 if “Muslim”, 4 if

“Traditional” and 5 if other religions. Employment status will be categorized into 1 if “Unemployed”, 2 if ‘Farmer’, 3 if “Salary worker”, 4 if “Self-employed”, and 5 if “Student”.

The socio-cultural reasons / personal beliefs were categorized into 1 if “It is against my tradition”, 2 if “I’m not likely to have HIV”, 3 if ‘I can’t be cured if tested positive’, 4 if “Fear of being positive”, 5 if “Fear of stigma /discrimination by friends/relatives”, 6 if “Fear of disclosure of test results”, 7 if “Fear of rejection by partner”, 8 if “Fear of falling ill early”, 9 if “Fear of dying early”, 10 if “fear of loss of job”, 11 if “fear of loss of housing”, 12 if “HIV is a curse from God”; 13 if “Busy schedule”; 14 if “other”; 15 if “No special reason”.

The health service – related reasons were categorized into 1 if “Cost of service is high”, 2 if “Long queues”, 3 if “Fear of stigma/negative response from healthcare providers”, 4 if “Lack of privacy/confidentiality”, 5 if “Fear of false positive results”, and 6 if “Distance to facility is very far”; 7 if “No special reason”.

### **3.4 Study population**

The population for this study consisted of men in the Bolgatanga municipality. According to the 2010 Population and Housing Census, the total number of males in the Bolgatanga municipal who are 18 years and older is 33,597(GSS 2012). Therefore the study population consisted of 33,597 men.

### 3.4.1 Eligibility criteria

For the purpose of this study one had to be male aged 18 – 59 years and a resident in the area for at least twelve (12) months.

## 3.5 Sampling

### 3.5.1 Sample Size Determination

A sample size of 610 men from the target population was used for the study. Data from the 2008 GDHS indicates that 12.7% of men in Ghana have undergone HIV testing and counselling (GSS *et al.*, 2009). That for Bolgatanga municipality is unknown. This figure was therefore used to calculate the sample size using the formula  $n = Z^2 P (1-P)/D^2$  which yielded a sample size of 170. Giving the objective and nature of the study (population-based cross-sectional survey), a sample size of 170 will be inadequate. Fifty per cent (50%) was therefore used as the proportion of men in Bolgatanga municipality who have undergone HIV testing in order to get a larger sample size that will be representative of the population. Also, the sample size calculation was based on a desired level of confidence at 95% (standard value of 1.96) and acceptable margin of error at 5% (standard value of 0.05).

Hence relying on the formula based on simple random sampling (SRS),  $n = Z^2 P (1-P)/D^2$ , where  $n$  = minimum required sample size,  $Z = \alpha$ -value at 95% confidence level,  $P$  = proportion of men who have undergone HIV testing and counselling (in this case 50%) and  $D$  = margin of error at 5%, then  $n = [(1.96)^2 0.5 \times (1 - 0.5)] / (0.05)^2 = 384$ . Since the sampling was not going to be simple random sampling, the value of  $n$  was further

multiplied by the design effect of 1.5 (i.e.  $384 \times 1.5 = 576$ ). This sample size was further increased by 5% to account for contingencies such as recording errors and non-response to certain questions (i.e.  $0.05 \times 576 = 28.8$ ) therefore giving a final sample size of 607 (i.e.  $576 + 29 = 607$ ). However, this figure was rounded up to 610.

### **3.5.2 Sampling technique**

Multi-stage sampling was used to select the sample for this study. This method was chosen to reduce selection bias and to ensure that the sample actually reflects the true characteristic of the entire population under study.

First level: Four (4) principal communities were selected out of the nine (9) principal communities in the municipality. Bolgatanga, which is the capital, formed part of the four principal communities. Simple random sampling without replacement was used to select the additional three (Gambibigo-Azuabisi, SheriguDorungu-Agobgabisi and Yarigabisi) out of the remaining eight (8) principal communities.

**Second level:** Houses were randomly selected within each of the four selected communities. This was done by first of all determining the boundaries of those selected communities. Names of strategic landmarks in the community such as a school, market, church, mosque and community centre were then written down by the researcher and the lottery method used to decide the start point of the sampling process. After determining the start point, the researcher then span a pen and followed the direction of the pen. All the houses along that direction formed part of the sample. Upon reaching the boundary of

the community the researcher returned to the start point and repeated the process by spinning the pen and following the direction of the pen.

**Third level:** A household each was further randomly selected from houses with two or more households with eligible participants. This was done by writing the names of the households on pieces of paper which were then folded, mixed together in a container and the researcher picked one folded paper at random. The household contained in the paper formed part of the sample.

**Fourth level:** One respondent each was selected within households with two or more eligible respondents. The names of the eligible respondents were written on pieces of paper, folded, mixed in container and the researcher picked one folded paper at random. The person whose name was picked participated in the study. Some persons declined to participate in the study and were replaced by repeating the process and selecting a different respondent. For those persons whose names were name were picked but were not immediately present, the researcher noted the house on the questionnaire and went back to the household later to interview him.

This sampling technique was repeated severally until about 152 men were obtained from each of the four communities to form the total sample size of 610 men.

### **3.6 Data collection techniques**

Data for the study was solely primary data and was collected through structured interviews. The interviews were mainly conducted in the local dialect (Gurune) which is largely spoken in the area to ensure that the respondents understand the questions very well and to ensure adequate responses. A total of five (5) motivated interviewers who had ever participated in a similar exercise in the district were recruited and trained well to assist the researcher in collecting the data.

Criteria for selection of the interviewers included the ability to understand and speak the local dialect of the study setting fluently as well as read and write in English language. The interviewer should hail from the area or should have stayed in the area for a period of six months or more and be conversant with the local traditional practices.

### **3.7 Data collection instrument**

A structured questionnaire constructed by the researcher was used for data collection. The questionnaire was developed after the review of literature and questionnaires used for similar studies, and it was developed in a manner that would solicit appropriate information that would address the objectives of the study. The questionnaire consisted mainly of closed-ended questions which were formulated in simple words and a couple of open – ended questions on the testing process that respondents who have ever been tested for HIV went through. The questionnaire was divided into four sections. Section 1 contained items on socio-demographic data of the respondent including age, marital status, educational level, religion and occupation. These were included to obtain a general

view of the social-demographic characteristics of the respondents. Section 2 contained items on awareness and perception of HIV testing and counselling, section 3 contained items on HIV testing and counselling history while section 4 contained items on reasons for use or non-use of HIV testing and counseling services comprising socio-cultural and health service – related reasons. The questionnaire was translated into vernacular during the training of the interviewers before it was used for the study.

### **3.8 Training of Interviewers**

Five motivated interviewers with nursing background and who have experience in conducting interviews from similar exercises were recruited and a training session organized for them to enhance their interviewing skills. Importance was attached to the training. The training covered an overview of the study including the purpose and the methodology of the study especially sampling and data collection techniques. It also covered community entry, ethics in research, interviewing and listening skills, and privacy and confidentiality. The questionnaire was well explained to them and translated into vernacular (Gurune). Emphasis was placed on the completeness of questionnaire as well as ensuring accuracy and consistency of responses from respondents.

### **3.9 Pretest of Questionnaire**

The questionnaire was pretested in Nima in the Greater Accra Region, which does not form part of the study area but has similar characteristics as those of the study area. It was pretested on 20 selected respondents. This was done to determine the appropriateness of the questionnaire to enable corrections and modifications to be made on questions that

may not be well understood by the respondents before the questionnaire was used for the study proper.

### **3.10 Actual Data Collection**

Data was collected from 4<sup>th</sup> – 17<sup>th</sup> June, 2013. The researcher and the interviewers visited the selected households and conducted face-to-face interviews. This study was undertaken after obtaining permission from the various community and household heads. A copy of the introductory letter was shown to them. Written informed consent was obtained from participants after explaining the purpose of the study to them before they were interviewed by the researcher or research assistants. Participants were interviewed in private, away from family members and friends in Gurune or any other language spoken by both the interviewer and respondent. The questionnaires were completed by the interviewers in English.

The interview solicited information regarding the participant's socio-demographic characteristics such as age, level of education, religious affiliation, and marital status; awareness and perception of HIV testing and counselling; HIV testing and counselling history; and reasons for seeking or avoiding HIV testing. A few of the respondents who postponed the interview or were not present but formed part of the sample were followed up later and interviewed at their own convenient time. This was made possible by noting the physical address description of such respondents on the questionnaires. An interview per respondent lasted for about 25 minutes, not including the informed consent process.

### **3.11 Quality Control**

To ensure quality control of the data, interviewers were recruited and trained to enhance their data collection skills. Furthermore, the questionnaire was reviewed by my supervisor and the necessary corrections made after which it was pretested to determine its appropriateness. Questions that were found to be ambiguous during the pre-test were modified for clarity before the questionnaire was used for the actual study. Also, the researcher directly supervised the collection of data and reviewed daily completed questionnaires.

### **3.12 Data Processing and Analysis**

One major outcome variable was examined in the analysis of this study; that is, HIV testing and counselling service use by men. HIV testing and counselling service use is defined as the process of having undergone HIV testing and counselling in HIV testing and counselling centre. Data was processed and analyzed using SPSS 16.0 version. After the data collection two trained data entry clerks separately entered the survey data into SPSS16.0 version. The two files were then merged and compared for any data entry discrepancies. Frequencies and cross tabulations were performed to identify missing values and errors resulting from the data entry. All data errors were verified and corrected by checking the original questionnaires, which all had identity numbers, before the data was analyzed. All completed questionnaires were included in the analysis. An appropriate measure of centrality was computed (median age). Associations between the outcome variable and each of the explanatory variables were assessed using Chi squares test at

95% confidence interval. A p-value of 0.05 or less was taken to be statistically significant.

Socio-demographic data is presented in the form of frequencies and others are cross-tabulated with other key variables to better understand the associations for HIV testing and counseling use. Data on factors associated with HIV testing and counselling use is presented in the form of tables, and narrative report with the use of proportions and percentages.

### **3.13 Limitations of the Study**

Several limitations of the research design and methodology should be taken into consideration when interpreting these findings. Perhaps the most important limitation follows from the self-reported nature of the data. The study is community-based and solely relied on self-report by the respondents. This may have led to reporting bias because of the possibility of reporting behaviors that are socially desirable. In addition, recall bias may have occurred especially with regard to HIV testing history.

Secondly, household size may theoretically have biased the sampling strategy towards younger men because most households usually have more young men than elderly men.

Another limitation is the fact that the study did not involve the providers of the service. Obtaining a complete picture of the HIV testing and counseling utilization would require involving the providers of the service in the study to know from their perspective the factors that influence testing and counseling use and the challenges they are facing as providers of the service.

### **3.14 Ethical Consideration**

The participants of this study included adult males aged 18 – 59 years.

#### **a) Approval for study**

Approval for the study (Appendix 3) was sought from the Ethical Review Committee of Ghana Health Service, Research and Development Division, Accra. Approval was also obtained from the Bolgatanga Municipal Assembly. Protocol was observed during entry to the communities by seeking permission from the community heads and then the household heads before the commencement of the study. An introductory letter (Appendix 4) from Population, Family and Reproductive Health Department of the School of Public Health, University of Ghana, was shown to them for confirmation.

#### **b) Voluntariness/consent**

The purpose of the study was explained to the respondents and a written consent obtained. They were informed that participation in the study was completely voluntary. Moreover, they were told that if they agreed to participate in the study, they may end their participation at any stage of the study or skip any questions without penalty or loss to existing benefits to which they are entitled as citizens.

#### **c) Potential risks**

The study had no physical risks; however, the respondents were told that a few questions may be upsetting or emotionally sensitive. Another risk may be a breach of confidentiality, something the researcher took strict precautions to guard against.

**d) Potential benefits/compensation**

The respondents were told there was no direct benefits to them except the satisfaction they would derive from participating in an important study that could help formulate health policies. Also, they were told there was no compensation for participating in the study.

**e) Privacy/confidentiality**

The interviews were conducted away from people including friends and relatives to ensure privacy and confidentiality. No personal identifiers such as names and telephone numbers of respondents were collected.

**f) Data storage/security and usage**

Data obtained from the study was stored in a password-protected computer and access was limited to only the researcher and the supervisor of the study. The results of the study will be used to design programmes regarding HIV testing and counselling as a strategy for preventing the spread of HIV. The results will also be presented at conferences and published in journals.

**g) Funding for study**

The study was self-sponsored to the tune of about GhC 3, 216.40.

**h) Conflict of interest**

The researcher had no conflict of interest in the study apart from the academic and public health relevance of the study.

**i) Contact persons**

The respondents were given functional contact numbers of the researcher and the administrator of the Ethical Review Committee of Ghana Health Service in case they wanted to enquire more information about the study (Appendix 2).

## CHAPTER FOUR

### RESULTS

#### 4.1 Introduction

In this chapter the results of the study are described and the analyses of the data are presented. The results describe information on the socio-demographic characteristics of respondents, awareness and perception of HIV testing and counseling by men, proportion of men who have used HIV testing and counseling service, the reasons for use or non-use of HIV testing and counseling services and the association between socio-demographic characteristics and testing.

#### 4.2 Socio-Demographic Characteristics of Respondents

This section presents the descriptive statistics of individual background characteristics of respondents. The background characteristics described below include the age, educational level, religion, marital status, and employment status of the respondents.

Table 1 below indicates that a total of 610 men participated in the study. The mean age of the respondents was 31.6 years with a median age of 29.0 years. Almost half of the respondents 258 (42.3%) ranged between the ages of 18 and 27 followed by 199 (32.6%) of the respondents in the range of 28 and 37 years. Only 53 of the respondents representing 8.7% ranged from 48 to 59 years. Analysis of findings of the study showed that a higher proportion of the respondents 171(28%) had no formal education, 156 (25.6%) had senior high school/secondary education while 55 (9%) had college/university education. Of the respondents 284 (46.6%) were Christians, followed

by traditional believers 203 (33%), while atheist formed the minority 31(5.1%). Approximately, half of the respondents, 332 (54.4%) were married, 8 (1.3%) were divorced while 259 (42.5%) were never married. Amongst the married, majority, 295 (88.9%) was in monogamous marriage while only 37 (11.1%) were in polygamous marriage. A higher proportion of the respondents, 187 (30.7%) were self-employed, followed by unemployed, 128 (21%). Only 61 (10%) of the respondents were salary workers.

**Tables 1: Socio-demographic characteristics of respondents (N=610)**

<b>Demographic characteristic</b>	<b>n (%)</b>
<b>Age</b>	
18 – 27	258 (42.3)
28 – 37	199 (32.6)
38 – 47	100 (16.4)
48-59	53 (8.7)
<b>Level of education</b>	
No formal education	171 (28.0)
Primary School	100 (16.4)
JHS/Middle School	128 (21.0)
SHS/Secondary school	156 (25.6)
Tertiary	55 (9.0)
<b>Religion</b>	
Atheist	31 (5.1)
Christianity	284 (46.6)
Muslim	92 (15.1)
Traditional	203 (33.3)
<b>Marital status</b>	
Never married	259 (42.5)
Married	332 (54.4)
Divorced	8 (1.3)
Widowed/Separated	4 (0.7)
Cohabiting	7 (1.1)
<b>Type of marriage</b>	
Monogamous	295 (88.9)
Polygamous	37 (11.1)
<b>Employment status</b>	
Unemployed	128 (21.0)
Farmer	124 (20.3)
Salary worker	61 (10.0)
Self-employed	187 (30.7)
Student	110 (18.0)

### **4.3 Awareness and Perception of men regarding HIV testing and counselling**

#### **4.3.1 Awareness of HIV Testing and Counselling**

Out of a total of 610 respondents, 606 (99.3%; Table 2) were aware prior to the day of the interview that there is a test that can diagnose someone infected with HIV. Only four (4) people representing 0.7% indicated they were not aware of such a test (Table 2). Majority of the respondents, 497 (81.5%) were aware of discordance of HIV results among

couples while 113 (18.5%) of the respondents were not aware that discordance of HIV test results can exist between couples.

**Table 2: Respondents' Awareness of HIV Testing and Counselling**

<b>Variables</b>	<b>n (%)</b>
<b>Awareness of HIV Test</b>	
Yes	606 (99.3)
No	4 (0.7)
<b>Awareness of Discordance</b>	
Yes	497 (81.5)
No	113 (18.5)
<b>*Source of Information</b>	
Relatives	195 (32.2)
Friends	346 (57.2)
School teacher	107 (17.7)
Health worker/Educator	285 (47.1)
Radio/television	414 (68.4)
Film/video	47 (7.8)
Newspaper/Public poster	39 (6.4)
Church/mosque	38 (6.3)
<b>*Awareness of Testing Centers</b>	
Hospital	544 (89.8)
Clinic/health centre	289 (47.7)
Private laboratory	86 (14.2)
Don't know	16 (2.6)
<b>*Awareness of Benefits of Testing</b>	
Facilitate early treatment	254 (41.6)
Help prevent the spread of HIV	386 (63.3)
Help prevent HIV associated illnesses	156 (25.6)
Don't know	71 (11.6)

(\*) *Multiple responses were allowed*

#### **4.3.2 Source of Information, Testing Centres, and Benefits of Testing and Counselling**

As shown in Table 2, out of the 606 respondents who were aware of HIV testing and counselling, majority 414 (68.3%) heard the information through the radio/television,

followed by friends 346 (57.1%) and health worker/educator 285 (47.0%). Other sources of information indicated by the respondents included relatives 195 (32.2%), school teacher, 107 (17.7%), film/video 47 (7.8%), newspaper/public poster 39 (6.4%), and church/mosque 38 (6.3%).

Of people who were aware of testing and counselling for HIV, a vast majority 554 (89.8%) mentioned the hospital as where a testing centre can be found, 289 (47.7%) of them mentioned the clinic/health centre while 16 representing 2.6% said they did not know where a testing centre is located (Table 2). Some respondents gave multiple responses.

In response to a question regarding what the respondents consider as benefits of HIV testing and counselling, majority 386 (63.65) said testing and counselling will help prevent spread of HIV, 254 (41.6%) said it will facilitate early treatment while 71(11.6%) of the respondents said they did not know of any benefits of HIV testing and counselling (Table 2). Some of the respondents gave more than one response.

#### **4.3.3 Risk Perception and Perceived Importance of HIV testing and counselling**

Respondents' risk perception and perceived importance of testing and counselling for HIV are shown in Table 3. Regarding the perceived importance of testing and counselling, 296 (48.5%; Table 3) of the 610 respondents believed that HIV testing is very important, 194 (31.8%) said HIV testing is important, 100 (16.4%) felt HIV testing is somewhat important while 20 (3.3) said HIV testing and counselling is not important.

In response to a related question about whether they felt couple testing is important, 272(44.6%; Table 3) respondents said couple testing is very important, 208 (34.1%) believed it is important, 85 (13.9%) said it is somewhat important while only 45 (7.5%) felt couple testing is not important. About 39.2% of the respondents felt they are at low risk of being infected with HIV, 149 (24.4%) felt they are at no risk at all while 222 (36.4%) felt they are at high risk of being infected with HIV as shown in Table 3.

**Table 3: Risk Perception and Perceived Importance of HIV Testing and Counselling**

Variable	n (%)
<b>Perceived Importance of Testing</b>	
Not important	20 (3.3)
Somewhat important	100 (16.4)
Important	194 (31.8)
Very important	296 (48.5)
<b>Perceived Importance of Couple Testing</b>	
Not important	45 (7.4)
Somewhat important	85 (13.9)
Important	208 (34.1)
Very important	272 (44.6)
<b>Risk Perception</b>	
Not at risk	149 (24.4)
Have low risk	239 (39.2)
Have high risk	222 (36.4)

#### **4.4 Use of HIV Testing and Counseling Services/Likelihood to use HIV testing and counselling services**

Table 4 below indicates that only 169 (27.7%) men have ever used HIV testing and counselling services in the municipality out of 610 respondents. Of this number, almost all of them 168 (99.4%) knew their test results; 133 (78.7%) fully used the service, that is, was taken through the entire process including testing, counselling, and receiving test

results; 35 (20.7%) tested and received the results without counselling, while only one person representing 0.6% was tested and counselled but did not receive the test results. Out a total of the 610 only 47 (7.7%; Table 4) tested within the last 12 months prior to the study of which all of them knew their results. Majority of them 36 (76.6%) were tested, counselled and given their test results while 11 (23.4%) went through testing and receiving test results only as shown in Table 4.

In response to a question regarding where the respondents tested the last time, majority 94 (55.6%; Table 4) of the total of 169 respondents said they tested at the hospital, 37 (21.9%) said they tested in a clinic/health centre while 7 (4.1) and 31 (18.3%) indicated a private laboratory and other places respectively. When asked how likely they are to request HIV testing and counselling in the next 12 months, 68 (40.2%) of the respondents who had ever been tested for HIV said they are likely to go for testing, 58 (34.3%) said they are very likely, 17 (10.1%) said they are somewhat likely to test while 26 (15.4%) said they are not likely to request HIV testing counselling. On the contrary, of the 441 respondents who had never been tested for HIV, a higher proportion of them 183 (41.5%) said they are not likely to request HIV testing within the next 12 months, 135 (30.6%) said they are likely to test, 94 (21.3%) indicated they are somewhat likely to be tested while only 29 (6.6%) indicated they are very likely to request HIV testing in the next 12months (Table 4).

**Table 4: Proportion of respondents ever tested and likelihood to use HIV testing and counselling services**

<b>Variables</b>	<b>n (%)</b>
<b>Ever Tested</b>	
Yes	169 (27.7)
No	441 (72.3)
<b>Steps Followed</b>	
Testing and counseling	1 (0.6)
Testing and receiving results	35 (20.7)
Testing, counseling, and receiving results	133 (78.7)
<b>Tested Within Last 12 Months</b>	
Yes	47 (7.7)
No	122 (72.2)
<b>Steps Followed</b>	
Testing and receiving results	11 (23.4)
Testing, counseling, and receiving results	36 (76.6)
<b>Place Last Tested</b>	
Hospital	94 (55.6)
Clinic/health centre	37 (21.9)
Private laboratory	7 (4.1)
Others	31 (18.3)
<b>Likelihood of testing if ever tested</b>	
Not likely	26 (15.4)
Somewhat likely	17 (10.1)
Likely	68 (40.2)
Very likely	58 (34.3)
<b>Likelihood of testing if never tested</b>	
Not likely	183 (41.5)
Somewhat likely	94 (21.3)
Likely	135 (30.6)
Very likely	29 (6.6)

#### **4.5 Reasons for use or non-use of HIV testing and counselling services**

##### **4.5.1 Reasons for testing**

Table 5 indicates that more than half, 97 (57.4%) of the respondents who had ever been tested for HIV wanted to know their HIV status, 35 (20.7%) went to donate blood, 13

(7.7%) were encouraged by a friend and 8(4.7%) tested as a requirement for marriage/new relationship. Responses to a question that sought to find out where men who had ever been tested and those who had never been tested but are somewhat likely, likely or very likely to test would have preferred/would prefer to test for HIV, revealed that more than half, 426 (57.6%), of the respondents prefer to go the hospital for testing. The clinic/health centre was the second most preferred place 87 (20.4%), followed by home 35 (8.2%), private laboratory 28 (6.6%) and community centre 26 (6.1%).

#### **4.5.2 Socio-cultural reasons/personal beliefs for not testing**

Socio-cultural reasons and some personal beliefs mentioned by respondents who had never been tested for non-use of HIV testing and counselling services are reported in Table 5. The results show that a greater proportion 182 (41.6%) of them felt they were not likely to have HIV, 153 (35.0%) said they were afraid of stigma and discrimination by their relatives and friends, 106 (24.3%) mentioned fear of being positive while 41 (9.4%) and 34 (7.8%) mentioned busy work schedule and fear of dying early respectively as the reasons why they have not gone for testing and counselling. Some men said they avoid testing for fear of disclosure of test results 33 (7.6%), fear of rejection by partner 32 (7.3%) and fear of falling ill early 31(7.1%). Twelve respondents representing 2.7% said they did not have any special reason why they have not tested for HIV. Some respondents gave multiple responses.

### **4.5.3 Health Service-Related Reasons for Not Testing**

In response to a multiple response question that sought to find out circumstances related to health service delivery that act as barriers to testing and counselling, 114 (26.1%) of those who had never been tested mentioned fear of false positive results, 111(25.4%) cited long queues at the testing centres, 87 (19.9%) said the cost of the service was high while 58 (13.3%) and 57 (13.0%) mentioned fear of stigma/negative response from health care providers and lack of privacy and confidentiality as some reasons why they have not gone for HIV testing and counselling services (Table 5).

**Table 5: Reasons for Use and Non-use of HIV Testing and Counseling Services (N=610)**

<b>Variable</b>	<b>n (%)</b>
<b>Reasons for Testing</b>	
To know my HIV status	97 (57.4)
Requirement for employment	3 (1.8)
Requirement for marriage/new relationship	8 (4.7)
To donate blood	35 (20.7)
Illness/doctor's request	5 (3.0)
Encouraged by a friend	13 (7.7)
Distrust of sexual partner	6 (3.6)
Illness/death of a sexual partner	2 (1.2)
<b>*Socio-Cultural Reasons/personal beliefs for not Testing</b>	
It is against my tradition	1 (0.2)
I am not likely to have HIV	182 (42.0)
If tested positive , I can't be cured anyway	21 (4.8)
Fear of being positive	106 (24.5)
Fear of stigma from friends/relatives	153 (35.3)
Fear of disclosure of test results	33 (7.6)
Fear of rejection by partner	32 (7.4)
Fear f falling ill early	31 (7.2)
Fear of dying early	34 (7.9)
Fear of loss of job	4 (0.9)
Fear of loss of housing	8 (1.8)
HIV is a curse from God	2 (0.5)
Busy work schedule	41 (9.5)
No special reason	12 (2.8)
<b>*Health Service-Related Reasons for not Testing</b>	
Cost of the service is high	87 (19.9)
Long queues	111 (25.4)
Fear of stigma/negative response from providers	58 (13.3)
Lack of privacy/Confidentiality	57 (13.0)
Fear of false positive results	114 (26.1)
Distance to facility is far	14 (3.2)
No special reason	73 (16.7)
<b>Preferred Place for Testing and Counseling</b>	
Hospital	246 (57.6)
Clinic/health centre	87 (20.4)
Private laboratory	28 (6.6)
Home	35 (8.2)
Workplace	5 (1.2)
Community centre	26 (6.1)

(\*)Multiple responses were allowed

Table 6 and 7 respectively show the proportion of respondents who have ever used and/or likely to use HIV testing and counseling services. Age, marital status and religion were not associated with participants who have ever tested for HIV or were willing to get tested within the next 12 months. Nonetheless level of education was associated with uptake of testing or one's likelihood of testing for HIV ( $p < 0.05$ ; Table 6 and 7).

**Table 6: Associations between Socio- Demographic Characteristics and Use of HIV Testing and Counselling Services**

Characteristics	Ever undergone HIV testing and counselling		p-value
	Yes (n=169) n (%)	No (n=441) n (%)	
<b>Age</b>			
18-27	67 (39.6)	191 (43.3)	0.43
28-37	61 (36.1)	138 (31.3)	
38-47	30 (17.8)	70 (15.9)	
48-59	11 (6.5)	42 (9.5)	
<b>Education</b>			
None	34 (20.1)	137 (31.1)	<0.001*
Primary	25 (14.8)	75 (17.0)	
JHS	33 (19.5)	95 (21.5)	
SHS	51 (30.2)	105 (23.8)	
Tertiary	26 (15.4)	29 (6.6)	
<b>Marital status</b>			
Single	81 (47.9)	178 (40.4)	0.19
Married	84 (49.7)	255 (57.8)	
Separated	4 (2.4)	8 (1.8)	
<b>Religion</b>			
Atheist	7 (4.1)	24 (5.4)	0.19
Christianity	90 (53.3)	194 (44.0)	
Muslim	25 (14.8)	67 (15.2)	
Traditional	47 (27.8)	156 (35.4)	
<b>Employment</b>			
Unemployed	28 (16.6)	100 (22.7)	<0.001*
Farmer	19 (11.2)	105 (23.8)	
Salary worker	26 (15.4)	35 (7.9)	
Self-employed	59 (34.9)	128 (29.0)	
Student	37 (21.9)	73 (16.6)	

JHS- Junior High school/ Middle school; SHS- Senior High school; \*significant at  $p < 0.05$

**Table 7: Associations between Socio-Demographic Characteristics and Likelihood to Test**

Characteristics	Likelihood to request for HIV testing and counseling service				p-value
	NLIK (n=204)	SLIK (n=111)	LIK (n=203)	VLIK (n=87)	
	n (%)	n (%)	n (%)	n (%)	
<b>Age</b>					
18-27	79 (37.8)	47 (42.3)	100 (49.3)	32 (36.8)	0.08
28-37	66 (31.6)	33 (29.7)	66 (32.5)	34 (39.1)	
38-47	38 (18.2)	19 (17.1)	27 (13.3)	16 (18.4)	
48-59	26 (12.4)	12 (10.8)	10 (4.9)	5 (5.7)	
<b>Education</b>					
None	76 (36.4)	30 (27.0)	53 (26.1)	12 (13.8)	0.01*
Primary	30 (14.4)	25 (22.5)	36 (17.7)	9 (10.3)	
JHS	39 (18.7)	22 (19.8)	45 (22.2)	22 (25.3)	
SHS	50 (23.9)	25 (22.5)	48 (23.6)	33 (37.9)	
Tertiary	14 (6.7)	9 (8.1)	21 (10.3)	11 (12.6)	
<b>Marital status</b>					
Single	78 (37.3)	47 (42.3)	91 (44.8)	43 (49.4)	0.54
Married	127 (60.8)	62 (55.9)	107 (52.7)	43 (49.4)	
Separated	4 (1.9)	2 (1.8)	5 (2.5)	1 (1.1)	
<b>Religion</b>					
Atheist	14 (6.7)	8 (7.2)	6 (3.0)	3 (3.4)	0.15
Christianity	84 (40.2)	51 (45.9)	99 (48.8)	50 (57.5)	
Muslim	31 (14.8)	20 (18.0)	29 (14.3)	12 (13.8)	
Traditional	80 (38.3)	32 (28.8)	69 (34.0)	22 (25.3)	
<b>Employment</b>					
Unemployed	50 (23.9)	29 (26.1)	29 (26.1)	34 (16.7)	0.002*
Farmer	53 (25.4)	22 (19.8)	22 (19.8)	36 (17.7)	
Salary worker	22 (10.5)	7 (6.3)	7 (6.3)	17 (8.4)	
Self-employed	54 (25.8)	39 (35.1)	39 (35.1)	74 (36.5)	
Student	30 (14.4)	14 (12.6)	14 (12.6)	42 (20.7)	

NLIK- Not likely; SLIK- Somewhat likely; LIK- likely; VLIK- Very likely; JHS- Junior High school/ Middle school; SHS- Senior High school; \*significant at  $p < 0.05$

In addition to the above, it can be reported from Table 6, that more salaried workers (15.4%) have ever tested for HIV as against (7.9%) of salaried workers who had never tested for HIV ( $p < 0.001$ ). Only a few of the respondents who were unemployed (16.6%)

had ever tested for HIV. Respondents who had any form of employment were more likely to get tested for HIV ( $p=0.002$ ; Table 7). This is to say that one's' employment status is likely to affect his/her decision to get tested for HIV.

## CHAPTER FIVE

### DISCUSSION OF FINDINGS

#### 5.1 Introduction

This chapter presents the discussions of findings based on the objectives outlined in the study. The general objective of this study was to determine the uptake of HIV testing and counselling among men in the Bolgatanga Municipality. The specific objectives were:

- (1) To determine the awareness and perceptions of men regarding HIV testing and counselling
- (2) To determine the proportion of men in the Bolgatanga municipality who have ever used HIV testing and counselling services
- (3) To document reasons for use and non-use of HIV testing and counselling services by men
- (4) To assess the associations between socio-demographic attributes and use of HIV testing and counselling services

#### 5.2 Awareness and perceptions of men regarding HIV testing and counselling

Findings from the study revealed that the vast majority (99.3%) of the respondents were aware of a test that can identify person infected with HIV. This is comparable to findings from other studies (GSS *et al.*, 2009; Illiyasu *et al.*, 2006; He *et al.*, 2009; Bwambale *et al.*, 2008; Donkor, 2012; Lamessa, 2005) that reported that majority of the respondents knew of a test that can diagnose HIV. This suggests that there is high awareness of HIV testing and counselling among men and may be due to the intense educational campaigns

on HIV testing and counselling in the municipality by Ghana Health Service and other stakeholders.

Majority (68.3%) of the respondents heard the information through the radio. Friends, health worker/educator, relatives, church/mosque, newspaper and school teacher were some of the sources of information on HIV testing and counselling mentioned. These findings agree with findings from previous studies (Lamessa, 2005; Charles *et al.*, 2009; Donkor, 2012) which describe the radio, friends, and health educator as key sources of information on HIV testing and counselling. This shows that there is no unified source of information and suggest that health education in the municipality is widespread. It also suggests that the radio is a powerful tool for disseminating information. Knowledge of the frequent source of education will help effective planning of educational programmes in the municipality.

In this study majority of the respondents were able to mention at least one testing centre in the municipality with most of them mentioning the hospital as where a testing centre could be found. This is consistent with findings from a study by Bwambale *et al.* (2008) which indicated that most of the respondents knew of at least a test centre. This implies that education on HIV testing and counselling has gone down well to the grassroots. On the contrary, this finding disagrees with Illiyasu *et al.* (2006) who reported that more than half (55%) of the respondents knew of a test that identifies individuals with HIV, however, only 26% knew where they could have the test.

Donkor (2012) reported that most respondents indicated that testing and counselling will help people who test positive to seek medical care, will help protect one from HIV infection and will prevent transmission of HIV if one is tested positive. Similarly, in this study many of the respondents mentioned that HIV will help prevent spread of the HIV virus, will facilitate treatment and/or help prevent HIV associated illnesses. This shows that awareness on HIV testing and counselling is high even though one's knowledge of the benefits of testing and counselling for HIV does not always result in increased uptake of testing and counselling (Charles *et al.*, 2009).

Finding from this study showed that most of the respondents felt testing and counselling is very important. This supports a couple of studies (Bwambale *et al.*, 2008; Irungu *et al.*, 2008) which have indicated that most men felt HIV testing and counselling was important. One interesting finding was that about 85 % of the respondents believed that there could be discordant HIV test results among couples. This disagrees with Bwambale *et al.* (2008) in their study on Voluntary HIV counseling and testing among men in rural western Uganda that over half of the respondents did not believe that there could be discordant HIV test results. The explanation of that magnitude of difference could be that HIV testing and counselling awareness has increased over the years. Additionally, some respondents may have guessed the answer.

Further statistical analysis of the findings indicated that high awareness was significantly associated with uptake of testing and counselling and the likelihood of requesting for HIV test ( $p < 0.001$ ) with participant with high awareness more likely to test for HIV.

This lends support to other studies (Sherr *et al.*, 2007; He *et al.*, 2009) with similar findings. This implies that one way of increasing uptake of HIV testing and counselling services is to create awareness.

Majority of the respondents in this study felt they were at no risk or low risk of being infected with HIV. This evidence supports previous studies (Bwambale *et al.*, 2008; Fiaveh *et al.*, 2011; Lamessa, 2005) which reported that majority of the respondents in their studies perceived themselves to be at no risk or low risk of being infected with HIV. For example, Bwambale *et al.*, 2008, indicated that majority (80.1%) of men is aware about HIV testing and counselling programme in their area, however, however, only 9.1% of them perceived themselves to be at high risk of HIV. This has implications for public health because studies have shown that low risk perception is a barrier to testing and counselling (Nuwaha *et al.*, 2002; Wolff *et al.*, 2005). This is supported by evidence from this study which revealed after further statistical analysis that participants' risk perception was associated with testing or their likelihood to get tested ( $p < 0.001$ ). Therefore, suggesting the sensitization of people to see themselves as being at risk.

### **5.3 Proportion of men in the Bolgatanga municipality who have ever used HIV testing and counselling services**

Findings from this study show that the overall proportion of respondents who have ever tested for HIV is 27.7%. This disagrees with a number of past studies (GSS *et al.*, 2009; Bawmbale *et al.*, 2007; Hutchinson and Mahlalela, 2006; de Graft *et al.*, 2005, Fiaveh *et al.*, 2011; UNAIDS, 2009; He *et al.*, 2009; Donkor, 2012) done in the past which reported much lower percentages. This may be due to the fact that some measures such as

‘Know your status’ campaign that have been carried out in the municipality by the Ghana Health Service (GHS) in an effort to increase the uptake of HIV testing and counselling services in the municipality. Another explanation could be that there is increased level of awareness of HIV testing and counselling. This finding is however lower than findings from other studies (Kalichman and Simbayi, 2003; Charles *et al.*, 2009). However, the difference in magnitude may be due to the differences in characteristics of the groups of participants of the studies. Whereas the study participants involved in the study conducted by Kalichman and Simbayi (2003) consisted of males and females, the respondents involved in the study carried out by Charles *et al.* (2009) comprised of healthcare professional students that included both males and females within 18 to 25 years of age.

The study also revealed that 7.7% of the respondents tested and received the test results within the 12 months preceding the study. This disagrees with findings from the 2008 Demographic and Health Survey which indicated that 4.1% of men had tested and received their test results. It may however be as a result of the increased awareness of HIV testing and counselling among the general population and increased efforts by GHS and other non-governmental organizations (NGOs) in the region to increase the use of testing and counselling services for HIV.

The hospital (57.6%) and the clinic/health centre (20.4%) were the two most preferred place of choice for testing by the respondents in this study. This disagrees with previous studies (Irungu *et al.*, 2008) who reported that Dedicated Testing and Counselling centres

and doctors' offices were rated as the two most desirable facilities for VCT (Irungu *et al.*, 2008). This may be due to the fact that the respondents are more familiar with these places as places for accessing health care.

#### **5.4 Reasons for Use or Non-Use of HIV Testing and Counselling Services by Men**

The study identified a number of reasons that influences the utilization of testing and counseling either positively or negatively. The findings of this study are in line with the conceptual framework underpinning this work, Andersen and Newman framework of health services utilization. According to the framework, an individual's access to and use of health services (in this case HIV testing and counseling service) is considered to be a function of three characteristics namely predisposing factors, (social structure, health believe, demographic characteristics), enabling factors (personal/family factors, community factors) and need factors (perceived need, evaluated need).

The purpose of the conceptual framework is to discover the conditions that either facilitate or hinder utilization of a service. The reasons identified in this study are described below:

##### **5.4.1 Reasons for undergoing HIV Testing and Counseling**

Findings from this study showed that majority of those who tested for HIV indicated they wanted to know their HIV status. Others tested because they were to donate blood, were encouraged by a friend, distrusted their sexual partners, as a requirement for marriage/new partner or due to sickness/partner's sickness. This evidence supports findings from a study by Denison *et al.* (2009) who reported that most participants

indicated they wanted to test to know their HIV status. It is however inconsistent with findings from a study by Alemayehu (2010) in northern Ethiopia that indicated that people will not accept HIV testing unless they are to travel abroad or planning to get married. This is not surprising because a lot of education on the need to test for HIV has gone in the municipality with effort of NGOs and GHS. The finding also suggests that there is no unified reason why people test for HIV. In fact, in some circumstances such as requirement for job or visa to travel people are somewhat compelled to take the test.

#### **5.4.2 Reasons for non-use of HIV Testing and Counseling Services**

The study identified a number of reasons why men do use HIV testing and counseling services. They include socio-demographic, socio-cultural/personal beliefs and health service-related reasons.

##### **5.4.2.1 Socio-cultural reasons/Personal beliefs**

Finding from this study revealed that majority of those who had not tested for HIV felt they were not likely to have HIV. Other reasons mentioned for non-use of the service included fear of stigma and discrimination from friends and relatives, fear of being positive, fear falling ill or dying early, fear of loss of job or housing, fear of disclosure of test results, fear of rejection by partner and busy work schedule. These findings support previous studies (Hutchinson and Mahlalela, 2006; Herek *et al.*, 2003; Ostermann *et al.*, 2011, Manirankunda *et al.*, 2009; Maman *et al.*, 2001) with similar findings. These findings suggest that there is no unified reason for refusal to take HIV test. One interesting finding in this study was that majority of the respondents said they have not

tested for HIV because they are not likely to have HIV. This contradicts others studies (Bababola, 2007; Sherr *et al.*, 2007; Irungu *et al.*, 2008; Bwambale *et al.*, 2008) which reported stigma as the most important barrier to testing and counseling use. This may be an indication that HIV – related stigma is gradually reducing because people in the municipality personally know people living with HIV who are on treatment and appear to look very well.

#### **5.4.2.2 Health service-related reasons**

Some reasons identified from this study as health service-related for non-use HIV testing and counselling services by men include fear of false positive results, long queues at the testing centres, high cost of the service, fear of stigma/negative response from health care providers and lack of privacy and confidentiality. With respect to health service related reasons, the findings appeared to be consistent with most studies (Nuwaha *et al.*, 2002; van Dyk and van Dyk, 2003; Bwambale *et al.*, 2008; Obermeyer and Osborn, 2007) done in the past which reported similar findings. One possible explanation for these findings is that some of these reasons could be based on perception. For example, a study in Kigali and Lusaka showed that lack of money was cited by respondents for non-use of testing and counseling services even though at the time of the survey testing in Government health facilities was free (Kelley *et al.*, 2011). These findings suggest the need to dispel the perceptions of long queues, high cost of service and false positive results as well as some new strategies such as door –to-to rapid blood testing for HIV. For example, Evidence from part of a longitudinal study in rural Malawi where a door-to-door rapid blood testing for HIV was offered to the respondents indicates that the vast

majority of those offered the HIV test in their homes agreed to be tested and to receive their results immediately (Angotti *et al.*, 2008). Nevertheless, providers of the service need to be reoriented to be friendly towards their clients and ensure privacy and confidentiality in dealing with their clients.

### **5.5 Socio-Demographic Characteristics of men and Use of HIV Testing and Counseling Services**

Socio- demographic characteristics of men investigated in this study include respondents' age, level of education, marital status, religion, and employment status. Review of literature showed that education is associated with the uptake of testing and counseling services (Sherr *et al.*, 2007; He *et al.*, 2009; Kalichman and Simbayi, 2003) and one's likelihood of testing (Gage and Ali, 2005; de Walque, 2006). In this study educational level was significantly associated with utilization of HIV testing and counseling services ( $p < 0.001$ ) and the likelihood of requesting HIV test within the next 12 months ( $p < 0.001$ ). These findings are in concordance with findings of the previous studies. This may be due to the fact that people with higher education may have more understanding of the benefits of testing, thereby suggesting the need for improvement in access to education such as provision of free basic education up to the SHS level. This finding however disagrees with Holmes *et al.*, 2008, who reported that women with secondary education were 88% less likely to accept testing as compared with those with no/primary education. However, this may be due to the differences in gender.

Some previous studies have reported an association between age and testing and the likelihood to test. For example, Hutchinson et al., 2006; and Bwambale *et al.*, 2008, reported that older men are more likely to test while other studies (Fiaveh *et al.*, 2011; Leta *et al.*, 2012; Gage and Ali, 2005) indicated that older men are less likely to test for HIV. Findings from this study indicate that age is not associated with testing or the likelihood of testing. And therefore does not support any of the studies.

Religion and marital status showed no association with testing or likelihood of testing. This supports findings from a study conducted by Fiaveh *et al.*, 2011, who reported that religion and marital status have no significant influence on testing but disagrees with Leta *et al.*, 2012, who reported that Muslim is inversely associated with testing. This implies that no religion is a barrier to testing.

Employment status was found in this study to be associated with uptake of HIV testing and counseling service ( $p < 0.001$ ) and the likelihood of using testing and counseling service ( $p = 0.002$ ). This is in line with Bwambale *et al.*, 2008, who reported an association between occupation and HIV testing. One possible explanation is that people who are employed are likely to have more income to afford transportation and cost of the service.

## CHAPTER SIX

### CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Conclusions

The study established that a vast majority of the respondents (99.3%) were aware of a test that could identify HIV in an individual; however, most of the respondents (63.6%) felt they were at no risk or low risk of being infected with HIV. About 89.8% of those who had heard of HIV test could locate at least one testing centre in the municipality and at least 68% of the total respondents were able to mention one benefit of testing for HIV. Radio/television was the most frequent (68.4) source of information.

The study established low utilization of HIV testing and counseling services by men in the Bolgatanga Municipality. Only 27.7% of the respondents had ever tested for HIV of which 99.4% of them had received their test results. About 7.7% had tested and received their test result within the last 12 months preceding the commencement of the study. Approximately, 20.7% of the respondents tested without counseling.

The study identified socio-demographic, socio-cultural/personal beliefs, and health service-related reasons that hinder people from testing.

The two most frequent reasons given by the respondents for testing were “To know my HIV status” (57.4%) and “To donate blood” (20%). On the contrary, the most frequent reason cited by respondents for non-use of the service was that they felt they are not likely to have HIV (42%). Other reasons that were mentioned include fear of stigma by friends/relatives, fear of testing positive, long queues, fear of false positive test results,

and high cost of service. Education and employment status were significantly associated with testing ( $p < 0.001$ ) and the likelihood to test for HIV.

## **6.2 Recommendations**

The following recommendations are given considering policy makers, health care providers and institutions.

### **6.2.1 Policy Makers and Implementers**

Health educational programmes should be organized purposely to sensitize people that everybody is at risk of being infected with HIV. Evidence from available studies indicates that people with low risk perception are less likely to test for HIV. The radio/television which has been identified in this study as the most frequent source of information should be taken advantage of by public health practitioners to reach the general population with such health messages.

There is the need to introduce new strategies such as door-to-door rapid HIV same day results test. This will increase the rate of testing especially among those who avoid the hospital for fear of being recognized by known people.

Furthermore, policy makers should incorporate counseling services with blood donation points to counsel blood donors. Most people who go to test in order to donate blood miss the opportunity of being counseled effectively.

Additionally, health workers should provide quality care and ensure privacy and confidentiality in dealing with clients seeking testing and counseling services. The supervisors should give quarterly in service training and refresher courses to providers of the service on interpersonal and communication skills as well as ethics of nursing.

As men's education and employment status emerged as dominant factors in influencing utilization of HIV testing and counseling services, there is the need to empower the population through income generation and education, which are in tandem. Increased education would solve the income problem and increase predisposition to the use of health services. Government policy of Free Compulsory Universal Basic Education (FCUBE) must be effectively implemented and extended to the SHS level. Informal education programmes should be run for illiterate adults.

### **6.2.2 Recommendations for Future Research**

It is recommended that in future, a qualitative research approach with the aid of in-depth-interview and focus group discussions involving men and service providers should be employed to explore more of the factors that influence utilization of HIV testing and counseling services by men.

Future research should focus on the feasibility of door-to-door testing and counseling for HIV as an alternative approach for the prevention of HIV.

Also, there is the need to conduct a study among different groups of the society to determine the factors that influence their uptake of HIV testing and counseling.

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**APPENDIX 1****QUESTIONNAIRE****IDENTIFICATION**

NAME OF COMMUNITY: .....	FORM NUMBER: .....
PHYSICAL ADDRESS DESCRIPTION:	

**INTERVIEW ATTEMPTS**

	FIRST	SECOND
DATE	DAY: ..... MONTH: ..... YEAR: .....	DAY: ..... MONTH: ..... YEAR: .....
INTERVIEWER'S NAME:	_____	_____
RESULT*	RESULT CODE: .....	RESULT CODE: .....

**RESULT CODES:**

1 COMPLETED

2 POSTPONED

3 PARTLY COMPLETED

FIELD SUPERVISOR'S NAME: \_\_\_\_\_

DATA ENTRY SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

<b>Section 1: Socio-demographic characteristics.</b>		
1.1 How old were you at your last birthday?	.....Years old	
1.2 What is your highest level of education?	No formal education            1 Primary education                2 JHS/Middle Sch.                    3 SHS/Secondary Sch.                4 College/university                 5	
1.3 What is your religion?	Atheist (no religion)            1 Christianity                         2 Muslim                                3 Traditional                         4 others .....                        5	
1.4 What is your marital status?	Never married                    1 → Q 1.6 Married                                2 Divorced                             3 Widowed/Separated               4 cohabiting                         5	
1.5 If MARRIED, what type of marriage? Is it Monogamous or polygamous marriage?	Monogamous                        1 Polygamous                         2	
1.6 What is your employment status?	Unemployed                        1 Farmer                                2 Salary worker                      3 Self-employed                      4 Student                               5	

<b>Section 2: Awareness and perception of HIV testing and counselling</b>		
2.1 Before today, did you know that people can take simple test in a testing and counselling centre to find out if they have HIV?	Yes No	1 2 → Q 2.4
2.2 From whom or where did you hear the information? ( <b>MULTIPLE RESPONSES PERMITTED</b> )	Relatives Friends School teacher Health worker/educator Radio/ television Film/video Newspaper/ public poster Church/mosque Other methods.....	1 2 3 4 5 6 7 8 9
2.3 Where can you find such testing and counseling centers within this municipal? ( <b>MULTIPLE RESPONSES PERMITTED</b> )	Hospitals Clinics/health centre Private laboratory Don't know Others.....	1 2 3 4 5
2.4 Do you think it is important to test for HIV? If <b>YES</b> , is it somewhat important, important or very important?	Not important Somewhat important Important Very important	1 2 3 4
2.5 What do you think are the benefits of testing for HIV? ( <b>MULTIPLE RESPONSES PERMITTED</b> )	Don't know Will facilitate early treatment Will help prevent spread of HIV Will help prevent HIV associated illnesses Others: .....	1 2 3 4 5
2.6 Do you know that you and your partner can both test for HIV and one of you may test negative and the other may test positive?	Yes No	1 2

2.7 Do you think that couple testing is important? If YES, is it somewhat important, important, or very important?	Not important 1 Somewhat important 2 Important 3 Very important 4	
2.8 Do you think that you are at risk of catching HIV? If YES, do you have low risk or high risk?	Not at risk 1 Have low risk 2 Have high risk 3	
<b>Section 3: HIV testing and counselling history</b>		
3.1 Have you ever undergone HIV testing and counseling?	Yes 1 No 2 → Section 4	
3.2 If YES, what steps did you go through the last time you tested for HIV? <b>PROBE</b>	..... ..... .....	
3.3 Have you gone for the test within the last 12 months?	Yes 1 No 2 → Q 3.5	
3.4 If YES, what steps did you go through the last time you tested for HIV? <b>PROBE</b>	..... ..... .....	
3.5 Where did you go for the test the last time you tested for HIV?	Hospital 1 Clinic/health centre 2 Private laboratory 3 Others..... 4	

<p>3.6 What was the <b>reason</b> why you went for the test?</p>	<p>To know my HIV status 1  Requirement for employment 2  Requirement for marriage/new relationship 3  To donate blood 4  I was sick and doctor requested it 5  I was encouraged by a friend 6  Distrust of sexual partner 7  Illness/death of a sexual partner 8  Others: ..... 9</p>	
<p><b>Section 4: Reasons for use or non-use of HIV testing and counselling services</b></p>		
<p><b>REVIEW Q.2.1 and Q.3.1; if answer to Q.2.1 is YES and answer to Q.3.1 is YES, skip to Q.4.4; if answer to Q.2.1 is YES and answer to Q.3.1 No, continue from Q 4.1 in this section</b></p>		
<p>4.1 You said you have never tested for HIV. What are the <b>socio-cultural</b> reasons why you have not gone for testing? (<b>MULTIPLE RESPONSES PERMITTED</b>)</p>	<p>It is against my tradition 1  I'm not likely to have HIV 2  If I'm tested positive I can't be cured anyway 3  Fear of being positive 4  Fear of stigma /discrimination by friends/relatives 5  Fear of disclosure of test results 6  Fear of rejection by partner 7  Fear of falling ill early 8  Fear of dying early 9  Fear of loss of job 10  Fear of loss of housing 11  HIV is a curse from God 12  Busy schedule 13  Others..... 14  I don't have any special reason 15</p>	

<p>4.2 Sometimes people don't use a health service because of certain reasons directly related to the <b>health service</b>. What are these reasons why you have not gone for testing? <b>(MULTIPLE RESPONSES PERMITTED)</b></p>	<p>The cost of the service is high 1  Long queues 2  Fear of stigma/negative response from healthcare providers 3  Lack of privacy/confidentiality 4  Fear of false positive results 5  Distance to facility is very far 6  I don't have any special reason 7  Others..... 8</p>	
<p>4.4 How <b>likely</b> are you to request HIV testing and counseling service within the next 12 months?</p>	<p>Not likely 1  Somewhat likely 2  Likely 3  Very likely 4</p>	<p>→ End interview (if 3.1 is No)</p>
<p>4.5 From <b>where</b> would you prefer/have preferred to access the testing service?</p>	<p>Hospital 1  Clinic/health centre 2  Private laboratory 3  Home 4  Work place 5  Community centre 6  Others : ..... 7</p>	
<p><b>The interview has ended. Thank you very much for having spent so much time with me. Have a nice day!</b></p>		

## APPENDIX 2

### INFORMED CONSENT FORM

#### **Study Title: Utilization of HIV Testing and Counselling Services by Men in the Bolgatanga Municipality**

Good morning/afternoon. You are invited to take part in a research. Before you decide whether to participate, you need to understand why the research is being done and what it would involve. Please take the time to read or to listen as I read out the following information. You may talk to others about the study if you wish. Please, ask me if there is anything that is not clear, or if you would like more information. When all of your questions have been answered and you feel that you understand this study, you will be asked if you would wish to participate in the study, and if yes to sign this Informed Consent form.

#### **Purpose of the Study and Study Requirements**

**What is the study?** The purpose of the study is to find out the proportion of men in the Bolgatanga constituency who have tested for HIV and the factors that affect the use of the testing and counselling service.

**Why have I been invited to take part?** You have been invited to take part because you are an adult who lives in the municipality

**What will happen if I take part?** If you agree to take part in the study, we will ask you to sign this form. Also, you will be asked to respond to questions regarding whether you have tested for HIV or not and the factors that influenced you to go for the test or not to go for the test.

**How long will the interview last?** The interview will last for about 30 minutes.

**We may contact you again if** we need to follow-up on issues discussed with you.

#### **Risks**

**What are the risks of the study?** An inconvenience may be the time and effort you take to be a participant. You may find a few questions that I ask to be upsetting or emotionally sensitive. You do not have to respond to any question that makes you uncomfortable. You may end the interview at any time without penalty or loss of any benefits to which you are entitled as a citizen.

A risk may be a breach of confidentiality (something you say is accidentally provided to others) but I will take precautions to see that this does not happen.

#### **Benefits**

**What are the benefits of participating?** There are not direct benefits to you for participating in the study. You may find an indirect benefit in knowing you have participated in an important study that could help others in the future.

### **Confidentiality**

**Will my participation in the study be kept confidential?** The information that is collected during the interview will be kept private. No one will be told that you have participated in the study. I will make every effort to protect your privacy and maintain the confidentiality of all the information that you provide. Your name or other identifiers will not be included in reports from this study. Data will be stored in a personal computer with password-protected to prevent any other person from accessing the information

### **Voluntariness**

**What are my rights as a research participant?** Your participation in this study is completely voluntary. If you decide not to participate, you will not lose any existing benefits to which you are entitled. If you agree to participate in this study, you may end your participation at any time without penalty or loss to existing benefits to which you are entitled. If you decide to take part you are free to skip any questions. You are free to withdraw at any time during the course of the study without affecting your relationship between the researcher or health service provider.

### **Additional Information**

**What will I receive for participating?** You will not receive any money or other compensation for participation in the study.

**What will happen to the results of the research study?** The results of the study will be used to design programmes regarding HIV testing and counselling as a strategy for preventing the spread of HIV. The results will also be presented at conferences and published in journals.

**Who has reviewed the study for ethical issues?** This study has been reviewed by the Ghana Health Service Ethical Review Committee.

**What if I need more information?** If you have concern about any aspect of the study, you may speak to the researcher who will do his best to answer your questions.

You may call:

Ezekiel Apasera

Cell phone: 0244142279

Email: [eapasera@yahoo.com](mailto:eapasera@yahoo.com)

**What if there is a problem?** Any complaint about the way you have been treated during the study or any possible harm you might suffer will be addressed. Please contact;

**The Ethics Committee:**

Administrator, Ghana Health Service Ethical Review Committee, Ghana Health Service, P. O. Box MB 190, Accra, Office tel: +233-0302681109, Fax +233-0302685424, **Miss Nana Abena Kwaa Addai-Donkor (0244712919)**

**Subject statement:** I have read the informed consent for this study. I have received an explanation of the planned research, procedures, risks and benefits, and privacy of my personal information. I agree to take part in this study. I understand that my participation is voluntary.

**Your name:**.....

**Your signature/thumbprint:**.....**Date:**.....

**Investigator or person who conducted Informed Consent discussion:** I confirm that I have personally explained the nature and extent of the planned research, study procedures, potential risks and benefits, and confidentiality of personal information.

**Name of person obtaining consent:** .....

**Signature of person obtaining consent:**.....**Date:**.....