

Original Research Article

Utilization of HIV Testing and Counseling Services by Men in the Bolgatanga Municipality

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 assessed the uptake of HIV testing and counseling and the associated reasons for use or non-use of the service among men in the Bolgatanga Municipality.

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 span socio-cultural and health service-related reasons, and personal beliefs. Educational and employment statuses of respondents were found to be associated with the uptake of HIV testing and counseling services ($P < 0.001$), and the likelihood of testing within the next 12 months ($P = 0.01$ and $P = 0.002$ respectively).

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

Keywords: Testing and counseling, utilization, HIV, AIDS, men, Ghana

1. INTRODUCTION

Despite the increase in access to antiretroviral therapy (ART) HIV transmission continues to spread worldwide [1]. In 2010 about 34 million people were living with HIV worldwide. About 68% of them were residing in sub-Saharan Africa [2]. In Ghana HIV was first identified in March 1986. Since then successive governments have put in place measures to control the spread of the infection [3, 4]. However, according to the 2011 HIV Sentinel survey report, the Median HIV prevalence rate in Ghana for 2011 was 2.1 per cent with about 12,077 new infections occurring in the same year [5].

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 [6]. This is because 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 [7, 8]. 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 [9, 10] because most new HIV infections in Africa are acquired from cohabiting heterosexual partners [9-11]. HIV testing is also important in the fight against HIV-related stigma and discrimination. A Ghanaian study revealed that women who had ever being tested for HIV had significantly lower levels of stigmatizing and discriminating attitudes compared with those who had never tested for HIV [12].

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-own health facilities in many developing countries [13, 14]. As a result, many people living with HIV tend to be diagnosed late, after their immunity is compromised [15]. It is reported that only 10% of HIV infected persons know their HIV serostatus [16]. However, a Ugandan study on Voluntary HIV counseling and testing reported the prevalence of HIV testing among men to be 23.3% [17]. 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 [18].

A study to determine HIV testing and counselling use among men in the University of Ghana revealed that only 19% of the respondents had ever tested for HIV [19]. Other studies also reported lower HIV testing rate of 17% and 11% among men [20, 21]. However, a related study among healthcare professional students that included both males and females within 18 to 25 years of age showed that 35% of them had tested for HIV [22]. Similarly, HIV testing prevalence of 44% was reported in a study which participants comprised both males and females [8]. Another study indicated that 28% of the respondents plan to test for HIV within the next 12 months; most of them indicated that they wanted to know their status or to “free their mind” [23]. However, people will not accept HIV testing unless they are planning for marriage or to travel abroad [24]. A related study in rural Zimbabwe revealed that people felt the clinic was an appropriate testing and counseling centre [25].

Knowledge positively influences the uptake of HIV testing [26]. It is indicated in a study on HIV testing and counseling 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 [27]. A related study in Shanghai, China, revealed that 80% of the participants 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 [28]. Another study reported that majority of adolescents (92.2%) had heard about HIV testing, with most frequent source of information being radio/television (59.2%); however, majority of the respondents (83.3%) felt they were either at no risk or low risk of being infected with HIV [29].

A Ghanaian study on knowledge, attitudes and practices of voluntary counselling and testing for HIV among university students showed that majority (81%) of the respondents had heard about HIV testing [30]. Among those who had heard about HIV testing, 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, majority (70%) of the respondents indicated that counseling and testing 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 will

prevent transmission of HIV if one is tested HIV positive [30]. In related study in Tanzania among health care professional students, the respondents indicated sources of information on testing and counseling to include radio and television, friends, schools, church and seminars [22].

Persons willing to test for HIV are more likely to perceive themselves to be at high risk [31, 32]. However, HIV awareness does not always translate into perception of individual risk [33]. It is reported in Ugandan study that majority (80.1%) of men are aware about HIV counseling and testing programme in their area. And 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 infection; and over half of the respondents did not believe that there could be discordant HIV test results among partners [17]. A similar study among men indicated that 2 of 5 men did not believe that they were at risk of contracting HIV [19]. Low risk perception and fear of stigma and discrimination if tested seropositive have been cited as common perceived barriers to testing and counseling [34]. However, a couple of studies have shown that people have positive perception towards testing and counselling [27, 35].

A variety of factors influence the use of HIV testing and counselling services. For example, a study in Zimbabwe revealed that knowledge and education influence positively HIV testing and counselling use [26]. Similar studies have shown that higher education is associated with HIV testing and counseling use and increased likelihood of HIV testing [8, 36, 37]. However, a Ghanaian study reported that women with secondary education were 88% less likely to accept HIV testing as compared with those with no/primary education [38].

Research has shown that older men (≥ 30 years) are more likely to test for HIV as compared with younger men [20]. A related study revealed that younger age is associated with lower use of HIV testing and counseling services [39]. On the contrary, it is reported in a study on HIV counseling and testing among men that younger persons (20-29 years) are more likely to test for HIV [19]. The study also indicated that education, religion, marital status, and social status have no significant influence on uptake of HIV testing by men. A cross-sectional survey among men in Ethiopia revealed that the uptake of HIV testing in rural areas was higher among younger men (≤ 47 years) and those of higher socio-economic status while Muslim was inversely associated with use of testing and counseling services [40]. Also, a Ugandan study showed that men aged 35 years and below were more likely to test for HIV than older men. The study also revealed that occupation is associated with uptake of HIV testing and counselling services among men [17].

An HIV-related stigma is cited as the most important barrier to seeking HIV testing and counselling by a number of studies [17, 20, 41-44]. Similarly, stigma and fears of testing and test disclosure have been reported as major barriers to HIV testing [45]. However, a Kenyan study reported fear of partner's reactions as the most important barrier to utilization of testing and counselling services by women [46]. Findings from a qualitative research conducted in Mali, revealed that a large number of the respondents did not believe in the existence of HIV [47].

A study on factors influencing acceptability VCT indicated that some reasons mentioned by respondents for undergoing HIV testing included showing symptoms of AIDS; planned marriage; mandatory requirements like joining the army, when demanded by a sexual partner, illness/death of partner, and after engaging in unprotected sex. The study indicated that about two-thirds of the respondents indicated their decision to test for HIV is likely to be by themselves. However, some respondents mentioned that their decision to test is likely to be influenced by social relations such as spouses, sexual

partners, prospective marriage partners, relatives/friends, and health workers/counselors among others [34].

People have cited the issue of lack of privacy, fear of a breach of confidentiality, long distance to testing centers, long waiting time, cost and transportation, and the danger of labeling one HIV positive whereas he/she is not HIV positive as some of the reasons why they have not tested for HIV [13, 34, 48]. A study in Kigali and Lusaka, has indicated that one-quarter of the respondents cited lack of money as a barrier for accessing testing and counselling services, though at the time of the survey testing in government health facilities was free [49]. Also, lack of access to testing centres and poor quality of testing and counselling services in developing countries act as barriers to HIV testing [17, 50]. 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 showed that a vast majority of those offered the HIV test in their homes agreed to be tested and to receive their results immediately [54]. However, fear of stigma and negative response from healthcare providers have also been reported as barriers to HIV testing [52].

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 [5]. 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 % [53]. Since an effective vaccine against HIV has not yet been developed, HIV testing and counseling remains an integral component of prevention and care strategies [54]. Men's utilization of HIV testing 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. Also, in Ghana men tend to have more multiple sexual partners compared to women (11.4% and 1.1% respectively [18]. Meanwhile, majority of men still express their unwillingness to test for HIV [17]. 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. Thus, 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.

This study therefore sought to determine the uptake of HIV testing and counseling and the associated reasons for use or non-use of the service 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 or non-use of HIV testing and counselling services by men, and (4) to assess the associations between socio-demographic attributes and use of HIV testing and counselling services.

2. MATERIALS AND METHODS

2.1 Research design

A descriptive population-based cross-sectional survey design employing quantitative method for data collection was used for this study.

2.2 Research Setting

The study was conducted in Bolgatanga Municipality. The Bolgatanga Municipal Assembly with its capital - Bolgatanga - is located at the center of the Upper East Region. Bolgatanga is also the capital town of the Upper East Region. The municipality which occupies a land area of 729sq km is divided into three (3) administrative zones: Bolgatanga, Zuarugu and Sumbrungu-Sherigu zonal councils. It consists of nine main communities, viz. Bolgatanga, Tindonsobulugu, Yarigabisi, Zuarungu-Dachio, Gambibigo-Azuabisi, Kumbosigo, Sherigu Dorungu-Agobgabisi, Zaree, and Zonno. The Bolgatanga Municipality has a population of 131,550 (Source: 2010 Population and Housing Census, GSS). The 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 Doctor/Patient ratio is 1:30,534 whilst the Nurse/Patient ratio is 1:734.

2.3. Variables for the study

The outcome variable for this survey was HIV testing and counseling service use. HIV testing and counseling service use is referred to the process of having undergone HIV testing and counseling in HIV testing and counseling centre. It was measured in terms of three elements – testing, post-test counseling, 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 was 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 was also dichotomous, Yes (Have tested within the last 12 months) and No (Have not tested within the last 12 months). The explanatory variables for this study were Awareness and perception of HIV testing and counseling, Socio-demographic characteristics, Socio-cultural reasons/persona beliefs, and Health service – related reasons.

2.4 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.

2.4.1 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.

2.5 Sampling

2.5.1 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 counseling (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). Consequently, a sample size of 380 was obtained but was further multiplied by the design effect of 1.5 (i.e. $384 \times 1.5 = 576$) since the sampling was not going to be simple random sampling. This 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 yielding a final sample size of 607 (i.e. $576 + 29 = 607$). However, this figure was rounded up to 610.

2.5.2 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, 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. Houses were then 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. 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.

The last stage involved selecting one respondent each 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 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.

2.6 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) interviewers who had nursing background and 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 had to 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.

2.7 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 and a couple of open – ended questions. The questionnaire which was divided into four sections contained items on socio-demographic data of the respondent, awareness and perception of HIV testing and counseling, HIV testing and counseling history and reasons for use or non-use of HIV testing and counseling services. The questionnaire was translated into vernacular during the training of the interviewers before it was used for the study.

2.8 Actual Data Collection

Data was collected from 4th – 17th 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. 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.

2.9 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 on 20 selected respondents 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, 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.

2.10 Data Processing and Analysis

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 SPSS 16.0 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 bivariate Chi squares test. 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 reasons for use or non-use of HIV testing and counseling services is presented in the form of tables, and narrative report with the use of proportions and percentages.

3. RESULTS

3.1 Socio-Demographic Characteristics of Respondents

Table 1 shows data on demographic characteristics of respondents. Overall, 610 men participated in this 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. A higher proportion of the respondents 171(28%) had no formal education. Of the 610 respondents, 284 (46.6%) were Christians while atheist formed the minority 31(5.1%). Approximately, half of the respondents, 332 (54.4%) were married. Amongst the married, majority, 295 (88.9%) was in monogamous marriage. Only 61 (10%) of the respondents were salaried workers.

3.2 Awareness and Perception of men regarding HIV testing and counselling

3.2.1 Awareness of HIV Testing and Counselling

Table 2 indicates data on respondents' awareness on HIV testing and counseling. Out of a total of 610 respondents, 606 (99.3%) 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. Majority of the respondents, 497 (81.5%) were aware that discordance of HIV test results can exist between couples. 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%). 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 (2.6%) said they did not know where a testing centre is located; some respondents gave multiple responses.

In response to a question regarding the benefits of HIV testing and counselling, majority 386 (63.6%) 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 counseling (Table 2). Some of the respondents gave more than one response.

3.2.2 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%) of the 610 respondents believed that HIV testing is very important, 194 (31.8%) while 20 (3.3) said HIV testing and counselling is not important; 272(44.6%) respondents said couple testing is very 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.

3.3 Use of HIV Testing and Counseling Services/Likelihood to use HIV Testing and Counseling Services

As shown in Table 4, 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 of testing, counseling , and receiving test results; 35 (20.7%) tested and received the results without counseling, while only one person representing 0.6% was tested and counseled but did not receive the test results.

Out of a total of 610 only 47 (7.7%) tested within the last 12 months prior to the study of which all of them knew their results. Majority of them 36 (76.6%) fully used the service while 11 (23.4%) went through testing and receiving test results only (Table 4).

The findings revealed that majority 94 (55.6%; Table 4) of the 169 respondents who have ever undergone testing for HIV tested at the hospital, 37 (21.9%) tested in a clinic/health centre while 7 (4.1%) and 31 (18.3%) tested in a private laboratory and other places respectively. Of those who have ever been tested for HIV, 68 (40.2%) of them indicated they are likely to request HIV testing and counselling within the next 12 months, while 26 (15.4%) said they are not likely to request HIV testing counseling (Table 4). 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, while only 29 (6.6%) indicated they are very likely to request HIV testing in the next 12 months (Table 4).

3.4 Reasons for use or non-use of HIV testing and counseling services

3.4.1 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 never been tested and those who had ever undergone testing but are likely to test would prefer/would have preferred to test for HIV revealed that more than half, 426 (57.6%), of the respondents prefer to go to the hospital for testing. The clinic/health centre is the second most preferred place 87 (20.4%), while the workplace is the least preferred 5 (1.2%) by respondents (Table 5).

3.4.2 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 counseling 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 and 106 (24.3%) mentioned fear of being positive. 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.

3.4.3 Health Service-Related Reasons for non-use of Testing and Counseling Services

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 counseling, 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 counseling services (Table 5).

3.5 Associations between Socio-Demographic Attributes and Use of HIV Testing and Counseling Services

Table 6 and 7 respectively show the proportion of respondents who have ever used and/or likely to use HIV testing and counseling services. Findings revealed that age, marital status and religion had no statistical association with men's use of testing and counseling services or likelihood of testing within the next 12 months. However, level of education was associated with men's uptake of testing ($P < .001$)

or likelihood of testing for HIV ($P = .01$) (Table 6 and 7). Furthermore, 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 ($P < .001$). 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 ($P = .002$; Table 7). Thus, one's employment status is likely to affect his decision to get tested for HIV.

4. DISCUSSION

4.1 Awareness and perceptions of men regarding HIV testing and counseling

Findings from the study revealed that a 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 [17, 18, 27-30] 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 counseling among men and this may be due to the intense educational campaigns on HIV testing and counseling 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 counseling mentioned. These findings agree with findings from previous studies [22, 29, 30] which describe the radio, friends, and health educator as key sources of information on HIV testing and counseling. This shows that there are various sources of information on HIV testing 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 in 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 which indicated that most of the respondents knew of at least a test centre [17]. This implies that education on HIV testing and counseling has gone down well to the grassroots. On the contrary, this finding disagrees with finding from a study that indicated that only 26% of the respondents knew where they could have HIV test [27].

A Ghanaian study on voluntary counseling and testing for HIV reported that most of respondents indicated that testing for HIV will help people who test positive to seek medical care, will help protect one from HIV infection if one tests negative and will prevent transmission of HIV if one is tested positive [30]. Similarly, in this study many of the respondents mentioned that testing for 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 counseling is high even though one's knowledge of the benefits of testing and counseling for HIV does not always result in increased uptake of testing and counseling [22]. Finding from this study showed that most of the respondents felt testing and counseling is very important. This supports a couple of studies [17, 35] which have indicated that most men felt HIV testing and counseling 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 a study on Voluntary HIV counseling and testing among men in rural western Uganda that indicated that over half of the respondents did not believe that there could be discordant HIV test results [17]. The explanation of that

magnitude of difference could be that HIV testing and counseling 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 counseling and the likelihood of requesting for HIV test ($P < .001$) with respondents with high awareness more likely to test for HIV. This lends support to other studies [26] with similar findings. This implies that one way of increasing uptake of HIV testing and counseling 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 [17, 19, 28, 29] 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. This has implications for public health because studies have shown that low risk perception is a barrier to testing and counseling [32, 34].

4.2 Use of HIV testing and counseling services by men

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 studies [15-21] 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 have been carried out in the municipality by the Ghana Health Service (GHS) in an effort to increase the uptake of HIV testing and counseling services in the municipality. Another explanation could be that there is increased level of awareness of HIV testing and counseling. This finding is however lower than findings from other studies [8, 22]. However, the difference in magnitude may be due to the differences in characteristics of the groups of participants of the studies. In the previous two studies [8, 22], the participants comprised of both males and females while the participants of one of the studies [22] consisted of healthcare professional students within 18 to 25 years.

This 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 12 months prior to the survey. However, it may be as a result of the increased awareness of HIV testing and counseling among the general population and increased efforts by GHS and other non-governmental organizations (NGOs) in the region to increase the use of HIV testing and counseling services. 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 [35] which indicated that Dedicated Testing and Counseling centres and doctors’ offices were rated as the two most desirable facilities for VCT. This may be due to the fact that the respondents are more familiar with these places as places for accessing health care.

4.3 Reasons for Use or Non-Use of HIV Testing and Counseling Services by Men

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 [23] which reported that most participants indicated they wanted to test to know their HIV status. It is however inconsistent with findings from a study in northern Ethiopia [24] 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.

It was revealed from this study that majority of those who had never 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 of 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 [20, 45, 46] with similar findings. These findings suggest that there are diverse reasons for refusal to take HIV test. This study revealed low risk perception as the most important barrier to testing and counseling. This contradicts others studies [17, 41-44] 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.

Findings from this study also showed that 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 are some health-related reasons for non-use of testing and counseling services by men. These findings appear to be consistent with most past studies [13, 17, 34, 48] 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 [49]. These findings suggest the need to dispel the perceptions of long queues, high cost of service and false positive results as well as the need to adopt 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 [51]. 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.

4.4 Associations between Socio-demographic Attributes and Use of HIV Testing and Counseling Services

Review of literature showed that education is associated with the uptake of testing and counseling services [8, 26] and one's likelihood of testing [36, 37]. In this study educational level was significantly associated with utilization of HIV testing and counseling services ($P < .001$) and the likelihood of requesting HIV test within the next 12 months ($P < .001$). 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 findings from a study that showed that women with secondary education were 88% less likely to accept testing as compared with those with no/primary education [38]. However, this may be due to the differences in gender.

Previous studies have reported an association between age and HIV testing and the likelihood to test for HIV. For example, a couple of studies [20, 39] reported that older men are more likely to test while other studies [17, 19, 37, 40] 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 statistical association with testing or likelihood of testing. This supports findings from a study conducted in the past [19] which showed that religion and marital status have no significant influence on testing but disagrees with a similar study [40] which showed 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 significantly associated with uptake of HIV testing and counseling service ($P < .001$) and the likelihood of using testing and counseling service ($P = .002$). This is in line with findings from a study which reported an association between occupation and HIV testing [17]. One possible explanation is that people who are employed are likely to have more income to afford transportation and cost of the service.

4.5 Study limitations

This study is not devoid of limitations. 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 providers of the service.

5. 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.

Secondly 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%). Education and employment statuses were significantly associated with testing ($P < .001$) and the likelihood to test for HIV.

CONSENT

Permission was sought from the community heads and the household heads before the commencement of the study. Written informed consent was obtained from respondents before conducting this study.

ETHICAL APPROVAL

The study received ethical approval from the Ethical Review Committee of Ghana Health Service, Research and Development Division, Accra.

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TABLES

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

Demographic characteristic	n (%)
Age	
18 – 27	258 (42.3)
28 – 37	199 (32.6)
38 – 47	100 (16.4)
48-59	53 (8.7)
Level of education	
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)
Religion	
Atheist	31 (5.1)
Christianity	284 (46.6)
Muslim	92 (15.1)
Traditional	203 (33.3)
Marital status	
Never married	259 (42.5)
Married	332 (54.4)
Divorced	8 (1.3)
Widowed/Separated	4 (0.7)
Cohabiting	7 (1.1)
Type of marriage	
Monogamous	295 (88.9)
Polygamous	37 (11.1)
Employment status	
Unemployed	128 (21.0)
Farmer	124 (20.3)
Salary worker	61 (10.0)
Self-employed	187 (30.7)
Student	110 (18.0)

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Table 2: Respondents' Awareness of HIV Testing and Counselling

Variables	n (%)
Awareness of HIV Test	
Yes	606 (99.3)
No	4 (0.7)
Awareness of Discordance	
Yes	497 (81.5)
No	113 (18.5)
*Source of Information	
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)
*Awareness of Testing Centers	
Hospital	544 (89.8)
Clinic/health centre	289 (47.7)
Private laboratory	86 (14.2)
Don't know	16 (2.6)
*Awareness of Benefits of Testing	
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

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

Variable	n (%)
Perceived Importance of Testing	
Not important	20 (3.3)
Somewhat important	100 (16.4)
Important	194 (31.8)
Very important	296 (48.5)

Perceived Importance of Couple Testing

Not important	45 (7.4)
Somewhat important	85 (13.9)
Important	208 (34.1)
Very important	272 (44.6)

Risk Perception

Not at risk	149 (24.4)
Have low risk	239 (39.2)
Have high risk	222 (36.4)

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

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

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

Variable	n (%)
Reasons for Testing	
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)
*Socio-Cultural Reasons/personal beliefs for not Testing	
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)
*Health Service-Related Reasons for not Testing	
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)
Preferred Place for Testing and Counseling	
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*

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

Characteristics	Ever undergone HIV testing and counseling		P-value
	Yes (n=169) n (%)	No (n=441) n (%)	
Age			
18-27	67 (39.6)	191 (43.3)	.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)	
Education			
None	34 (20.1)	137 (31.1)	< .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)	
Marital status			
Single	81 (47.9)	178 (40.4)	.19
Married	84 (49.7)	255 (57.8)	
Separated	4 (2.4)	8 (1.8)	
Religion			
Atheist	7 (4.1)	24 (5.4)	.19
Christianity	90 (53.3)	194 (44.0)	
Muslim	25 (14.8)	67 (15.2)	
Traditional	47 (27.8)	156 (35.4)	
Employment			
Unemployed	28 (16.6)	100 (22.7)	< .001*
Farmer	19 (11.2)	105 (23.8)	
Salaried 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 $P < .05$

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

Characteristics	Likelihood to request for HIV testing and counseling services				P-value
	NLIK (n=209) n (%)	SLIK (n=111) n (%)	LIK (n=203) n (%)	VLIK (n=87) n (%)	
Age					
18-27	79 (37.8)	47 (42.3)	100 (49.3)	32 (36.8)	.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)	
Education					
None	76 (36.4)	30 (27.0)	53 (26.1)	12 (13.8)	.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)	
Marital status					
Single	78 (37.3)	47 (42.3)	91 (44.8)	43 (49.4)	.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)	
Religion					
Atheist	14 (6.7)	8 (7.2)	6 (3.0)	3 (3.4)	.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)	
Employment					
Unemployed	50 (23.9)	29 (26.1)	29 (26.1)	34 (16.7)	.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 $p < .05$