ENSIGN COLLEGE OF PUBLIC HEALTH, KPONG, EASTERN REGION, GHANA

KNOWLEDGE AND PRACTICES OF PROSTATE CANCER SCREENING AMONG MEN IN THE LOWER MANYA KROBO MUNICIPALITY IN THE EASTERN REGION OF GHANA

BY

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DECLARATION

I hereby do declare that except for the references made to other literature and works of other researchers which have been duly acknowledged, the content of this work is an output of my own investigation and has not been presented either in whole or in part for the award of any other degree elsewhere.

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(Head of Academic Program) Signature Date

DEDICATION

This work is dedicated to all Ghanaian men, especially men in the Lower Manya Krobo Municipality, and to my Dad of blessed memory.

ACKNOWLEDGEMENT

I give thanks to the Almighty God for granting me wisdom and strength during my studies. I am intensely thankful to my academic supervisor Dr. Stephen Manortey for his priceless guidance and supervision during the study.

I am also grateful to my family, especially my mum and siblings, Charity Laweh, John Laweh Josephine Laweh Amoh, Elizabeth Addo, Florence Aduteye and lastly my pillar, Gladys Naa Laweh for their encouragement and support in the pursuit of this programme.

I also thank the respondents for providing the required responses during the study. Lastly, my deepest appreciation to my lecturers, all my colleagues and friends for their support during the period of my Masters' program.

DEFINITION OF TERMS

In this study the following terms were used:

Knowledge-This refers to the understanding and/or awareness of the risk factors of prostate cancer.

Perception—These are the beliefs of respondents concerning the causes, seriousness and susceptibility of risk of suffering prostate cancer.

Practices----These are behaviors or acts of respondents concerning but not limited to screening for prostate cancer.

ABBREVIATIONS

ACS	-	American Cancer Society
CANSA	-	Cancer Association of South Africa
DRE	-	Digital Rectal Examination
GHS	-	Ghana Health Service
HIV	-	Human Immune Virus
INCTR	-	International Network for Cancer Treatment and Research
LI	-	Legislative Instrument
LMKM	-	Lower Manya Kobo Municipality
MOH	-	Ministry of Health
NCCE	-	National Commission on Civic Education
NHIS	-	National Health Insurance Scheme
PC	-	Prostate Cancer
PSA	-	Prostate-Specific Antigen
TRA	-	Theory of Reasoned Action

ABSTRACT

Background: Prostate cancer (PC) is the leading cause of cancer-related deaths in men 40 years and above. Incidence and mortality rates are higher in African men as they grow older. PC is amenable to early detection by screening which can prevent and reduce cancer deaths. Unfortunately, it is often detected late in the Ghanaian population due to lack of voluntary screening. This study assessed the knowledge and practices of PC screening uptake among men in the LMKM in the Eastern Region of Ghana.

Method: The study employed a cross-sectional design that used quantitative methods (structured questionnaire) to collect data from 363 respondents using a multistage sampling technique. Chi-square test statistics were used to estimate the association between the knowledge, practices and perception (dependent variables) and socio-demographic characteristics (independent variable) of respondents. Multiple binary logistic regression model was used to measure the strength of association between the variables at a 95% Confidence Interval.

Results: The majority (79.3%) of respondents were of the Ga-Adangme ethnic group, were in the 40-49 years age bracket (44.4%) and married (70.8%). Except for age group, marital status, ethnicity and number of biological children, all socio-demographic characteristics were significantly associated with PC screening uptake ($p<0.05$) but there was no significant association between socio-demographic characteristics and knowledge level on PC ($p>0.05$). Only religious affiliation and family history of PC were significantly associated with perceptions on PC.

Conclusion: The study showed that most men in the LMKM were aware of prostate cancer. This, however, did not translate into practice. Public Health interventions should have MOH liaise with the NHIS to roll out a free PC screening and prevention program in the District hospitals to ensure early screening.

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CHAPTER ONE

1.0 INTRODUCTION

1.1 Background Information

In recent times, the issue of prostate cancer (PC) has swept across the world, and Ghana is no exception. Researchers and health institutions continue to report extensively on prostate cancer. A case in point is the study of (Bray *et al.*, 2018; Ferlay *et al.*, 2019). The incidence and mortality of prostate cancer worldwide correlate with increasing age, with the average age at the time of diagnosis being 66 years. For African-American men, the incidence rates are higher when compared to White men, with 158.3 new cases diagnosed per 100, 000 men and their mortality is approximately twice as White men (Panigrahi *et al.*, 2019). The reasons for this disparity have been hypothesized to differences in social, environmental and genetic factors. According to Ferlay *et al.*, (2019), an estimated 2,293,818 cases have been projected until 2040 with a small difference in mortality (an increase of 1.05%). In Africa, the commonest type of cancer among men relating to both prevalence rate and mortality is prostate cancer. That is, the prevalence of all male cancer and mortalities associated with cancer is 40,000 (13%) and 28,000 (11.3%) respectively (Ferlay *et al*., 2010; Akinremi *et al*., 2011).

The prevalence of prostate cancer among Africans far outweighs that of men from other parts of the continent (Adibe *et al.,* 2017). What accounts for this disparity could be attributable to the differences in testing, referral patterns, access to care, differences in the biology of the disease, inherited susceptibility, treatment options, reporting and diagnosis (Akinremi *et al.,* 2011; Odedina *et al.,* 2006; American Cancer Society [ACS], 2016).

The rates of death due to early detection and treatment of prostate cancers have declined by 27% each year between 1991 and 2016 (ACS, 2016). Early detection is the result of lower

mortality in high-income countries. In comparison, late stage, incurable tumours, suggesting the need for education schemes and for better services are identified in high-income countries. (Nakandi *et* al.,2013).

Statistics show that prostate cancer is the second most common cancer in men with a prevalence of more than 200 cases per 100,000 population per annum in Ghana (Ministry of Health [MOH], 2011). In Ghana, about 75% of prostate cancer cases in hospitals have been reported in advanced stages, despite the high PC-related deaths (MOH 2011; Yamoah *et* al., 2013; Chu *et* al., 2011).

While higher understanding of prostate cancer among Nigerian men aged 50 and older was previously recorded, their level of information on prostate cancer was poor (below 40%) (Oladimeji *et* al., 2010). Specific studies have also shown low rates of basic prostate cancer awareness in Senegal (Gueye *et* al., 2003; Punga-Maole *et* al., 2008).

In a study conducted on prostate and cervical cancer knowledge, perception and screening behaviour in Ghana, the findings revealed a lack of knowledge on the key risk factors and symptoms of prostate cancer. The participants also had poor screening behaviours (Binka *et al.*, 2015). According to Nakandi *et al.*, (2013), poor knowledge of prostate cancer due to inadequate information on prostate cancer risk, screening and treatment contribute to poor diagnosis and prognosis of the disease.

In Certain surveys conducted in Ghana and Nigeria, awareness of prostate cancer was quite low as only 39.2 percent and 54.1 percent of participants were aware of prostate cancer respectively (Atulomah, Ademola Amosu, & Adedeji, 2010; (Binka, Nyarko, & Doku, 2015). Results of a study conducted in Nigeria showed that 48 percent of men were not aware of prostate cancer as a disease and the majority did not even know the function of the prostate (Atulomah *et al.*, 2010).

Although early detection is an integral component of successful prostate cancer therapy, the majority (87.5%) of the patients in Kenya present with advanced disease due to low awareness and a lack of early screening services (MPHS & MMS, 2011; Wasike & Magoha, 2007). Several studies in Nairobi County also showed that most prostate cancer patients report at the hospital with advanced disease, but their awareness and knowledge levels on the prostate were largely undefined (MPHS & MMS, 2011; Wasike & Magoha, 2007).

Regularly, elderly male patients in Ghana who are above 40 years present with complaints of hesitancy in starting urine, haematuria, and urinary stream lacking force, dribbling, having to urinate frequently and urgently, inability to empty the bladder completely and loss of libido (Duncan-Wesley, 2015). These clinical features are commonly on the increase, while little or no effort is made to raise awareness for early screening, detection and treatment.

Prostate cancer screening is an attempt to diagnose prostate cancer in asymptomatic men. The principles of screening for prostate cancer are the measurement of serum prostate-specific antigen (PSA > 4 ng/mL) and digital rectal examination (DRE). However, the evidence of benefit from screening for prostate cancer using serum PSA is inconclusive (Lin, Lipsitz. & Janakiraman 2008; Wilt *et* al., 2014). It is also unclear how PSA can be most effectively used in the detection of prostate cancer (Brawer, 2000) because men without cancer have also been found with elevated PSA. Some evidence has also revealed that the recent decline in cancer mortality observed in several countries was due to early detection (Kleihues & Stewart, 2003).

This study is essential because it will serve as evidence-based information for accurate planning to be embarked upon by health practitioners and policy makers in general. It will also give an indication of what may be expected in the general populace. Also, it adds to the scientific body of knowledge and serves as a source of literature; providing a conceptual

framework which can be adapted by researchers who want to conduct empirical studies on prostate cancer screening within the academic circles.

1.2 Problem Statement

Prostate cancer is diagnosed as the second common cancer in developed countries and third common cancer in developing countries and considered as the sixth leading cause of death related to cancer among men globally, with an estimated 1,276,000 new cases and 359,000 deaths as against the estimated 752,000 new cases and 506, 000 deaths in Africa respectively (Ferlay *et al.,* 2018; The Cancer Atlas, 2018). In the developed world, the probability of being diagnosed with cancer is more than twice as high as in developing countries. A common challenge encountered is the late presentation by the affected patients to the health facilities for screening and treatment (Jo *et al.,* 2013). This has been attributed mainly to poor awareness, inadequate health education, lack of screening programs for prostate cancer, poverty, poor healthcare facilities and paucity of specialist urological care (Olapade-Olaopa *et al.,* 2008; Eke & Sapira, 2002; Dawam *et al.,* 2000).

Similarly, there have been neither definite policies nor effective strategies for monitoring and controlling prostate cancer (Ferlay *et al.,* 2011). One of the most effective intervention tools for prostate cancer is screening and early diagnosis (Magoha & Ngumi, 2000). However, the lack of knowledge on the disease and the low uptake of routine screening among men, especially those at risk of developing prostate cancer make the problem a complex one (Duncan-Wesley, 2015). Also, there is not enough information regarding factors predisposing men to increased risk of prostate cancer, thereby hindering awareness and uptake of screening and early diagnosis (Duncan-Wesley, 2015).

In Ghana, it is estimated that the country records 921 new cases every year, with an estimated death rate of 758 (Ferlay *et al.,* 2010). However, the fact remains that there is very little

research that examines the knowledge and practices of prostate cancer screening uptake in West Africa and Ghana (Yeboah-Asiamah *et al.,* 2017). Although much emphasis has been placed on cancer in women in Ghana, especially breast and cervical cancer, there appears to be paucity of studies on routine screening of prostate cancer among men. Moreover, limited studies in the Greater Accra Region and Ghana in general, have led to over-dependence on research findings from elsewhere in the world, despite the fact that risks and factors influencing the outcomes of the disease are different.

It is against this backdrop that the study seeks to assess knowledge and practices of prostate cancer screening among males in the Lower Manya Krobo Municipality.

1.3 Rationale of the Study

This is a key study that shows the knowledge and practices toward prostate cancer screening among men in the Lower Manya Krobo Municipality. The results of this study will demand crucial health measures targeted at promoting specific knowledge levels on prostate cancer and call for positive behavioural changes towards avoiding risks for the development of prostate cancer in men.

The study will be important for designing new screening strategies for prostate cancer across the country, as early screening for prostate cancer has been revealed to contribute meaningfully to the management of the disease (MPHS & MMS, 2011).

It is anticipated that the data and information generated will also be used by local cancer bodies, the Ghana National Cancer Control Strategy, the Cancer Society of Ghana, academicians, scientists for developing policies for the control and prevention of prostate cancer in Ghana.

The recommendations of this study on improving uptake of screening and promoting information dissemination on prostate cancer will also go a long way in significantly improving the effective health management of prostate cancer at all stages among men.

1.4 Hypothesis/Conceptual Framework

As postulated by Defee *et al*., (2010), good research should be grounded in theory. In view of this, the research aligns itself with the Theory of Reasoned Action (TRA). The theory, developed by Fishbein (1967) was the conceptual framework utilized to guide this study (Figure 1). TRA has been used to test the relationship between behavioral beliefs, normative beliefs, and the intention to undergo certain behaviors. For this study, the attitudinal component (behavioral practices and the evaluations of these practices) and subjective norms were assessed as two of the precursors of intentions to screen for prostate cancer. In addition, age, educational attainment, religious affiliation, comfortability with prostate examination, cues to action, health screening experiences and knowledge regarding prostate cancer were examined. Based on the TRA, it is hypothesized that men's intention to screen for and prevent prostate cancer will be positively influenced by socio-demographic characteristics.

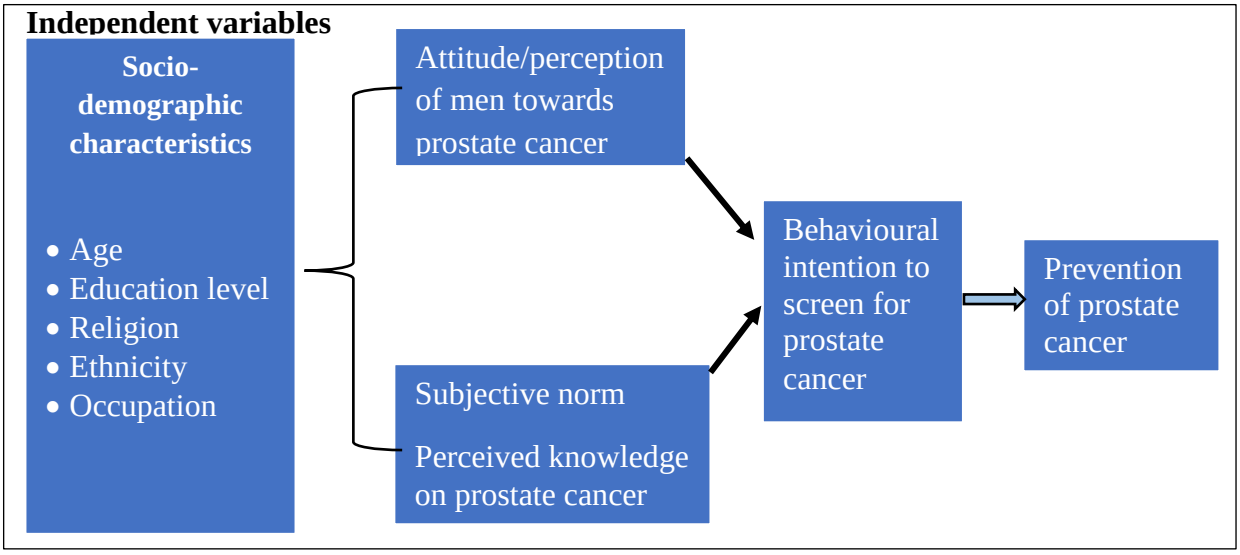

Figure 1: *Conceptual framework for the study*. Adapted from Fishbein **(1967)**

1.5 Research Questions

1. What are the practices of prostate cancer screening among men in the Lower Manya Krobo Municipality?
2. What is the knowledge levels of prostate cancer among men in the Lower Manya Krobo Municipality?
3. What are the perceptions of prostate cancer among men in the Lower Manya Krobo Municipality?
4. What is the relationship between knowledge and practices of prostate cancer and the socio-demographic characteristics of men in the Lower Manya Krobo Municipality?

1.6 General Objective

The main objective of the study is to assess the knowledge and practices of prostate cancer screening uptake and its relationship with socio-demographic characteristics of men in the Lower Manya Krobo Municipality.

1.7 Specific Objectives

1. To evaluate the practices of prostate cancer screening among men in the Lower Manya Krobo Municipality.
2. To examine the level of knowledge of prostate cancer among men in the Lower Manya Krobo Municipality.
3. To determine the perception about prostate cancer among men in the Lower Manya Krobo Municipality.
4. To measure the relationship between knowledge and practices of prostate cancer and the socio-demographic characteristics of men in the Lower Manya Krobo Municipality.

1.8 Profile of Study Area

The study was conducted at the Lower Manya Krobo Municipality (LMKM) (Figure 2). It is one of the 26 administrative districts in the Eastern Region of Ghana. The Municipality came into existence as a result of the split of the then Manya Krobo District into Lower and Upper Manya Krobo in 2008. It was elevated to a Municipality status in July 2012 by a Legislative Instrument (L.I.) 4026 with Odumase-Krobo as the capital.

The administrative capital of the District is Odumase. The District covers an area of 304.4 sq km, constituting about 1.7 % of the total land area within the Region (18,310 km). The major towns in the district include Odumase township (which incorporates Atua, Agormanya, and Nuaso), Akuse and Kpong in the Lower Manya area. The district shares boundaries with Upper Manya Krobo District to the north, to the south with Dangme West and Yilo Krobo respectively, to the west with Yilo Krobo Municipal and to the east with Asuogyaman District.

Almost 70 percent of the population 15 years and older are economically active, whiles those who are not economically active constitute 30.9 percent. Among the economically active population, 91.5 percent are employed and 8.5 percent are unemployed in the Municipality. Among the population who are not economically active, 53.3 percent are students, 13.2 percent are performing household duties whiles 6.9 percent are disabled or too sick to work. Nearly two-thirds (65.3%) of the unemployed are first-time job seekers while 34.7 percent have ever worked.

Nearly three out of every ten employed persons are service and sales workers whiles one-quarter are craft and related trade workers. Skilled agricultural forestry and fishery workers constitute 19.7 percent of the employed population in the Municipality. For the purpose of this study, all males 40 years and above in the Lower Manya Krobo Municipality will be considered.

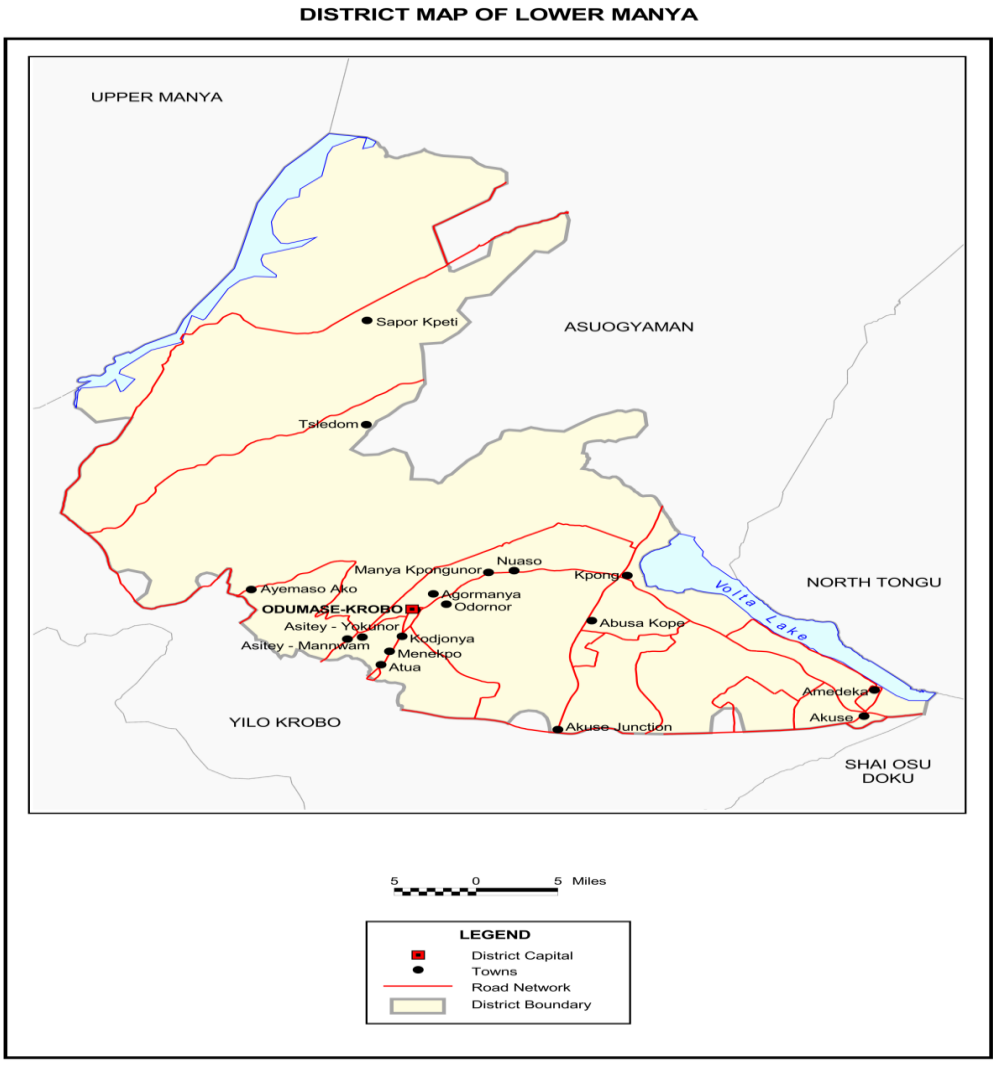

Figure 2: Map of Study Area (Lower Manya Krobo Municipality)

1.9 Scope of Study

The scope of the study was delimited to include men aged 40 years and above. Given that the interest of the study is linked to men in the age bracket, it was not considered a limitation of the study. Knowledge regarding prostate cancer and prostate cancer screening will strictly encompass knowledge of limitations of screening, side effects from treatment, symptoms and risk factors.

1.10 Organization of Report

The report is presented in six (6) sections. Chapter One offered the introduction which discusses the background information of the study, problem statement, the rationale of the study, hypothesis/conceptual; framework, research questions, general objective, specific objectives, the profile of study area and scope of the study. Chapter Two reviewed similar studies on the topic based on the objectives of the study. Chapter Three comprises research methods and design, data collection techniques and tools, study population, study variables, sampling, pre-testing, data handling, data analysis, ethical consideration, limitations of study and assumptions. Chapter Four presents a summary of background variables as well as the results based on the key variables of the study. Chapter Five discusses the results based on the research questions by comparing it with literature. Chapter Six presents the conclusion and recommendations by summarizing the key findings and directing recommendations to appropriate stakeholders.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Aetiology of Prostate Cancer

Pathological abnormalities occur more frequently in the prostate than elsewhere in human males. These changes increase in prevalence with increasing age and include benign prostatic hyperplasia and adenocarcinoma. Prostate cancer is an adenocarcinoma that may be slow-growing, aggressively evolving and metastasizing predominantly in the bones and lymph nodes (Grover & Martin, 2002). Prostate cancer causes pain, difficulty in urinating, anomalies of sexual intercourse and erectile dysfunction.

Globally, prostate cancer is the eleventh leading cause of death from cancer in all age groups and the sixth leading cause of cancer-related deaths in men (Ferlay *et al.,* 2011; Lozano *et al.,* 2012). The development of prostate cancer is influenced by ethnic, genetic differences and global distribution. In addition, androgens and ageing, environment, meat, and animal fat intake, among other factors are important risk factors for prostate cancer development (Grover & Martin, 2002).

2.2 Epidemiology of Prostate Cancer

Prostate cancer is the second most frequently diagnosed male cancer in the world (899,000 cases or 13.6% of male cancers) and the fifth most common cancer (Ferlay *et al.,* 2011). Nearly three-quarters of the registered cases occur in high income countries (644,000 cases) (Ferlay *et al.,* 2011).

Prostate cancer is the most frequently occurring cancer in men in the world (Babb, Urban, Kielkowski, & Kellett, 2014; Hevey *et al.,* 2009). Prostate cancer incidence differs significantly between geographical areas and with ethnicity (Babb *et al.,* 2014; Grönberg,

2003). Prostate cancer incidence is common in high-income countries and less common in developing countries (Haas *et al.,* 2009). In many high-income countries; mainly Europe and the United States, prostate cancer is one of the most common cancers and among the leading cause of death (Haas *et al.,* 2009) and it is a significant public health problem in the Western countries (Hevey *et al.,* 2009).

In Africa, prostate cancers are reported mostly as cases from the hospitals due to the lack of population-based cancer registries (Chu *et al.,* 2011). However, in the last 10 years, several new cancer registries have been opened, but data on prostate cancer are obtained more often than not from the West African countries (Delongchamps, Singh, & Haas, 2007). Prostate cancer incidence in sub-Sahara Africa is said to be on the increase in several countries, but the total incidence of prostate cancer is lower than that reported in Africa-Americans (Chu *et al.,* 2011; Delongchamps *et al.,* 2007). The rates of prostate cancer vary significantly about eight-times within sub-Sahara Africa, with the lowest rate reported in West Africa and the highest rates seen in the East (Chu *et al.,* 2011).

Prostate cancer was in 2008 the most commonly diagnosed cancer in Africa-America, the Caribbean and sub-Saharan African men recording the age-standardized prostate cancer incidence rate of 159.5 per 100,000 in Africa-Americas, 71.1 per 100,000 in the Caribbean and 17.5 per 100,000 in Africa (Rebbeck *et al.,* 2013). The incidence of prostate cancer in the world is on the increase across all age groups and particularly among young men (Delongchamps *et al.,* 2007). According to Bowa (2010), prostate cancer is occurring among young men in Africa than in developed countries and this makes prostate cancer an important public health problem (Delongchamps *et al.,* 2007).

2.3 Risk Factors of Prostate Cancer

The exact cause of prostate cancer, like other cancers, is not known. But certain risk factors are recognized to be linked to the development of prostate cancer (ACS, 2014). The most common risk factors of prostate cancer are ageing, hereditary factors (family history) and race or ethnicity (Hevey *et al.*, 2009; ACS, 2014; Alsharef *et al.*, 2012). Other predisposing factors include lifestyle factors such as smoking, diet, alcohol and stress, nationality and workplace exposure (environmental influence) (ACS, 2014; Alsharef *et al.*, 2012), and hormonal factors (Alsharef *et al.*, 2012; Ukoli *et al.*, 2008).

Prostate cancer is commonly diagnosed in men over the age of 65, with an estimated 6 in 10 cases of prostate cancer (ACS, 2014). Men aged 40 years and below are less frequently diagnosed with prostate cancer, but the probability of developing prostate cancer is higher after age 50 (ACS, 2014). Prostate cancer risk increases from 0.005% in men below 39 years to 2.2% that is 1 case in 45 men, among men aged 40 to 59 years and 13.7% (1 case in 7 men) among individuals aged 60 to 79 years and the chance of prostate cancer occurring in a man's lifetime is 16.7% that is 1 case in 6 men (Crawford, 2003). However, histological evidence shows a higher likelihood of developing prostate cancer, along with ageing (Crawford, 2003).

Men with family histories of prostate cancer are said to be at risk of the disease (Crawford, 2003; ACS, 2014). Prostate cancer risk is twice among men whose fathers or brothers are diagnosed with the disease. The risk of developing prostate cancer increases among men with several of their first-degree relations affected by the disease (Crawford, 2003; ACS, 2014). There is an indication that men with family history of prostate cancer develop prostate cancer on an average of 6 to 7 years earlier than those without family history and at early age (Crawford, 2003). An estimated 5% to 10% of all prostate cancer cases and about 40% of

prostate cancer diagnosed at 55 years are suggested to have a genetic origin (Crawford, 2003).

African-American men and Caribbean men of African ancestry are commonly diagnosed with prostate cancer than in men of other races. Prostate cancer incidence in African-Americans is one of the highest in the world (Crawford, 2003; Delongchamps *et al.*, 2007), with nearly 60% higher than reported cases in the white race (Crawford, 2003). African-Americans are diagnosed with prostate cancer at younger ages and at advanced stages compared to their white counterparts (Delongchamps *et al.*, 2007; Bowa *et al.*, 2010). The higher incidence of prostate cancer in African-Americans is yet to be explained, but it is suggested that both ecological and hereditary factors working together may account for such occurrences (Delongchamps *et al.*, 2007). However, prostate cancer incidence is less common in men of Asian, Hispanic or Latino lineage (ACS, 2014).

Prostate cancer risk is suggested to be influenced by diet even though the role of diet in prostate cancer is not understood (ACS, 2014; Crawford, 2003; Ukoli *et al.*, 2008). A higher prostate cancer risk is identified to be associated particularly with the higher intake of fat, red meat, and dairy products (Crawford, 2003; ACS, 2014; Kheirandish & Chinegwumdoh, 2011). Prostate cancer risk with a high level of calcium consumption is also identified (ACS, 2014). However, vitamin D, soy and omega-6 fatty acids are said to be protective of prostate cancer (Kheirandish & Chinegwumdoh, 2011).

Sex hormones are said to be associated with the risk of developing prostate cancer. Androgen has been indicated in the development of prostate cancer (Etawo *et al.*, 2012; Alsharef *et al.*, 2012). The study by Etawo *et al.*, (2012) concluded that elevated levels of testosterone and decreased levels of oestradiol in the blood are risk factors for developing prostate cancer.

This is contrasted by Alsharef *et al.,* (2012) whose study showed an association between low serum testosterone level and increased level of PSA.

2.4 Practices about Prostate Cancer Screening

Cancer screening can reduce the consequences of developing cancer as screening can facilitate early detection of developing cancer tissues leading to improved treatment results (Kolahdooz *et al.,* 2014). This is evident in the reduction of deaths caused by breast, lung, colon and cervical cancers through screening in the asymptomatic stages and early treatments (Kolahdooz *et al.,* 2014).

Early detection or screening is suggested to reduce mortalities from prostate cancer disease as the early detection of prostate cancer prevents the spread of cancer cells to other parts of the body (Capık & Gözüm, 2012; Schulman *et al.,* 2003). Early detection and treatment of prostate cancer are said to have a 94% survival rate (5-year survival rate) better compared to 30% when diagnosed in the advanced stages (Chiu *et al.,* 2005) and increased the survival benefit (Nakandi *et al.,* 2013). Prostate cancer strategies in Europe and America now include early screening to achieve a better treatment outcome which can be restorative (Rajbabu *et al.,* 2007). But there are raging arguments and/or controversies about the use of Prostate Specific Antigen (PSA) and Digital Rectal Examination (DRE) to test for prostate cancer (Nakandi *et al.,* 2013; Chan *et al.,* 2011).

The American Cancer Society recommends that men over the age of 50 years undergo either Prostate-Specific Antigen (PSA) or Digital Rectal Examination (DRE), prostate cancer screening every year. It further states that the advantages and disadvantages should be explained to patients before screening (Tasian *et al.,* 2012). The American Urological Association also advocates for screening after informed counselling to obtain a baseline DRE and PSA, and follow up screening based on the base-line value but at a lesser age of 40 years

(Tasian *et al.*, 2012). This is consistent with the Ghana Health Service guideline for screening services in Regional hospitals (MOH/GHS/SSG, 2011). But there are factors that serve as barriers and limit one's informed decision making for testing for prostate cancer. In the hospital, these factors may include patients, physician, and system barriers such as patient co-morbidity, lack of education, physician inability to remember, patient's inability to visit the clinic and attitudes (positive or negative) toward early screening for prostate cancer (Chan *et al.*, 2011). Different attitudes towards early detection of prostate cancer have been identified across Europe and across Africa, differences exist in patterns of screening, detection and treatment (Rebbeck *et al.*, 2011; Schroder *et al.*, 2010).

Studies have shown negative attitudes toward early screening for prostate cancer (Ilic, Risbridger, & Green, 2005; Nakandi *et al.*, 2013; Rajbabu *et al.*, 2007). Sanderson *et al.*, (2013) report that men in Australia have a negative attitude towards the screening of prostate cancer due to reasons such as the uncomfortable nature of DRE and the blood drawn for PSA. Other factors include embarrassment, anxiety and fear of knowing prostate cancer status has been reported to account for people's negative attitudes toward screening and treatment of prostate cancer (Arafa *et al.*, 2015). Pedersen *et al.*, (2012) report that the perceptions of fears and taboos, affect the willingness of men to talk to their doctors about prostate cancer. The perception of the threat posed by DRE to the masculinity of men and its associated pain also prevents men from screening for prostate cancer (Allen *et al.*, 2007; Pedersen *et al.*, 2012).

2.5 Knowledge about Prostate Cancer

Knowledge about prostate cancer is defined as having adequate information about the signs, symptoms, causes and health-seeking options for prostate cancer. Knowledge about prostate cancer is said to be an independent predictor of men's uptake of prostate cancer screening, despite Watson *et al.*, (2006) reporting that either very low or high (extreme) levels of

prostate cancer knowledge could also prevent men's intention of testing for prostate cancer (Pruthi *et al.,* 2005; Watson *et al.,* 2006).

A high level of knowledge about prostate cancer has been reported by previous studies (Cormier *et al.,* 2002; Hevey *et al.,* 2009; Oranusi *et al.,* 2012). Oranusi *et al.,* (2012) report that the majority of public servants in the Amanba State of Nigeria identified one or more symptoms of prostate cancer correctly with the most common symptom identified being the difficulty in urinating and identified correctly the risk factors associated with prostate cancer. This high level of knowledge is mostly found among men at high risk, especially those with family history of prostate cancer (Cormier *et al.,* 2002; Hevey *et al.,* 2009) men previously diagnosed of prostate cancer (Allen *et al.,* 2007), and among white men (Rajbabu *et al.,* 2007). It is reported that knowledge about prostate cancer increased among 40% of men after their brothers were diagnosed with prostate cancer (Pruthi *et al.,* 2005).

As reported by Comier *et al.,* (2002), older men are more knowledgeable about prostate cancer than younger men. In contrast, a study has found that older men of low income and from the rural areas whose brothers have been diagnosed with prostate cancer had poor knowledge about prostate cancer (Pruthi *et al.,* 2005). High knowledge levels have however been associated with a high level of education and income as reported by Wilkinson, *et al.,* (2003).

Previous studies have however reported low level of knowledge about prostate cancer in Australia (Sanderson, Wijesinha, & Jones, 2013), United States of America (Chan *et al.,* 2011; Allen *et al.,* 2007; Wilkinson *et al.,* 2003; Pedersen *et al.,* 2012), Uganda (Nakandi *et al.,* 2013), Nigeria (Jo, Eo, Co, & Eo, 2013) and the United Kingdom (Watson *et al.,* 2006). Jo *et al*., (2013), have reported a total lack of knowledge about the risk factors, symptoms, screening and treatment of prostate cancer in Nigeria.

Low levels are noted among men at low risk of prostate cancer, the Hispanic Americans (Chan *et al.,* 2011), men of younger age and those not diagnosed with prostate cancer (Allen *et al.,* 2007). However among the African-Americans and black men in general who are known to be at high risk of prostate cancer, Wilkinson *et al.,* (2003), Rajbabu *et al.,* (2007) and Pedersen *et al.,* (2012), reported a low level of knowledge about the disease. Knowledge about prostate cancer in the general populace is poor (Nakandi *et al.,* 2013; Wilkinson *et al.,* 2003; Pedersen *et al.,* 2012). Particularly, some studies have reported the lack of knowledge or awareness about the availability of screening or test for prostate cancer (Chan *et al.,* 2011; Allen *et al.,* 2007; Watson *et al.,* 2006), which is one of the reasons why the majority of prostate cancer cases are presented in advanced stages in the sub-region. Knowledge levels about prostate cancer can, however, be increased through educational programs and/or interventions (Wilkinson *et al.,* 2003; Rajbabu *et al.,* 2007; Watson *et al.,* 2006; Chan *et al.,* 2011).

2.6 Perceptions about Prostate Cancer

Perception of prostate cancer for the study is defined as the beliefs held about the causes, perceived seriousness and perceived susceptibility of risk of prostate cancer.

There are a group of perceptions which have an effect on attitudes toward diagnosis and treatment of a disease. These perceptions include; the perceived name given to disease and its manifestations (identity); perception about how long the disease lasts (timeline); beliefs about causes of the disease (causes); the perceived effects the disease has on the individual's life (consequences); and viewpoint of the length of time that an individual can treat the disease (treatment control) (Traeger *et al.,* 2009; Hevey *et al.,* 2009).

Perceptions about the causes and/or risk factors of prostate cancer have been noted, and it is especially among men who have not been diagnosed of prostate cancer (Allen *et al.,* 2007). Prostate cancer is perceived to be caused by having several sexual partners (Allen *et al.,* 2007), and in Uganda, it is seen as gonorrhea (Nakandi *et al.,* 2013). According to Fitzpatrick *et al.,* (2009), carrying mobile phones in the pocket was reported to increase the risk of developing prostate cancer. Hevey *et al.,* (2009) however, report of a good perception among men at risk of prostate cancer with men having a true conceptual picture of prostate cancer.

Diverse perceptions of the severity of prostate cancer have been expressed, and this may have influenced how men approach the diagnoses and treatment in high-income and developing countries, besides the disparities in the availability of test for prostate cancer. It has been reported in the United States of America that prostate cancer (and cancer in general) is perceived as a death sentence and/or a taboo, and the test (particularly Digital Rectal Examination) and treatment for prostate cancer pose as a threat to masculinity (Allen *et al.,* 2007; Pedersen, Armes, & Ream, 2012) but in Uganda, some men perceive prostate cancer as not as serious as HIV and Aids (Nakandi *et al.,* 2013).

Perceived risk (self-susceptibility risk) for prostate cancer has been reported in men with a family history of prostate cancer. Men whose relatives or family members have been diagnosed or died of prostate cancer perceive themselves to be at risk of getting the disease higher than ordinary men (Bratt, Damber, Emanuelsson, Kristo, & Lundgren, 2000; Cormier, Kwan, Reid, & Litwin, 2002). For instance, in Sweden, men with such backgrounds estimated their perceived risk for prostate cancer above the general men's perceived risk for prostate cancer of 30% (Bratt *et al.,* 2000). Even though men with a family history of prostate cancer are aware of their increased risk (Cormier *et al.,* 2002) and generally overrate their lifetime risk of prostate cancer (Bratt *et al.,* 2000; Matthew *et al.,* 2011), many at the same time underrate their risk (Cormier *et al.,* 2002).

An international survey has reported that many men (and their spouses) see themselves to be at minimal danger of developing prostate cancer (Fitzpatrick *et al.,* 2009). According to a study by Rajbabu *et al.*, (2007), black men do not know they are at increased risk of developing the disease. This is contrary to available evidence which suggests men of black ethnicity have a high risk of developing prostate cancer (ACS, 2014). It has been found that risk perception is considerably influenced by environmental (source of information about prostate cancer) and personal experience, and it is a process that changes over time (Matthew *et al.,* 2011).

Risk perceptions possess psychological distress (Matthew *et al.*, 2011). Men who perceive themselves at a higher risk of prostate cancer experience depression and anxiety, which affect their daily lives (Bratt *et al.,* 2000; Matthew *et al.,* 2011). Among men at risk of prostate cancer, prostate cancer is seen as a long-standing illness with severe effects that bring about negative emotional reactions (Hevey *et al.,* 2009). This is seen in men who overestimate their perceived risk of prostate cancer (Matthew *et al.,* 2011). On the other hand, Cormier *et al.*, (2002) have reported that among men with a family history of prostate cancer, one who has had prostate cancer lives a normal life after treatment without any psychological distress.

2.7 Conclusion

Prostate cancer is considered one of the leading diagnosed cancer in men and the fifth cause of cancer related death. There are a number of risk factors that predisposes men to contracting prostate cancer, the most common among them are family history of the disease, age, lifestyle factors such as alcohol intake. There are contrasting empirical evidence on the practices of prostate cancer as some reported positive association and others reporting negative association. Similar findings have been reported on the knowledge and perceptions of

prostate cancer. Most of these studies have been reported in high-income countries and limited studies done in Ghana. The next chapter presented the methodology of the study.

CHAPTER THREE

3.0 METHODOLOGY

3.1 Research Methods and Design

This study adopted a quantitative method that is linked with deductive methods (Saunders, Lewis & Thornhill 2016). The quantitative approach was chosen employing a structured questionnaire, to collect data on socio-demographic factors, practices of prostate cancer, knowledge about prostate cancer and early uptake of prostate cancer screening. The research design was a descriptive cross-sectional study among men in the Lower Manya Krobo Municipality.

3.2 Data Collection Techniques and Tools

A structured questionnaire with closed-ended questions was the data collection tool that was used for this study. The researcher together with the trained field assistants administered the questionnaire, after outlining the objectives to the respondents and seeking their voluntary consent. The questionnaire was designed to reflect the specific objectives and was "extracted" from the literature review. The questionnaire focused on socio-demographic factors, practices of prostate cancer, knowledge about prostate cancer and uptake of prostate cancer screening of the respondents.

3.3 Study Population

The population of interest for this study was men aged 40 years and above who have lived in the Lower Manya Krobo Municipality for more than a year. The choice of these men was because they were potentially at risk of developing prostate cancer. Another reason for this

age bracket of men was that screening for early detection of prostate cancer for men according to the Ghana Health Service starts at 40 years. However, men aged 40 years and above with cognitive impairment and had not made a continued stay in the Municipality were excluded from the study.

3.4 Study Variables

Dependent variables;

Practices of prostate cancer: The behaviour of respondents concerning but not limited to screening for suffering prostate cancer.

Perception on prostate cancer: The beliefs of respondents concerning the causes, seriousness, and susceptibility of risk of suffering prostate cancer.

Knowledge of prostate cancer: The understanding and/or awareness of the risk factors of prostate cancer

Independent variables;

Socio-demographic: Age, marital status, educational level, ethnicity, occupation and religion.

3.5 Sampling

A multi-stage sampling method was employed from 10th January to 20th February 2020 to select three hundred and sixty-three (363) men aged 40 years and above in the Lower Manya Krobo Municipality. This was done by conveniently locating subgroupings of men according to their general work characteristics, for instance, office workers, drivers, artisans, farmers, among others. A systematic selecting procedure with a chosen skip pattern was then used to pick study participants for enrolment after signing the consent form.

A sample size of about 346 men was estimated using the Cochran formula (1977) at 95% confidence interval and a 5% margin of error, considering a 65.2% prevalence rate for prostate cancer from literature.

$$n = \frac{(Z)^2 p(1-p)}{e^2}$$

Where:

n = desired sample size (Cochran, 1977)

Z = Reliability coefficient for a 95% confidence interval usually set at 1.96.

$\boldsymbol{p}$ = The most recent study obtained on the prevalence of prostate cancer was 65.2% (Egote, Ossei, Agyeman-Duah, Quarshie & Taylor, 2018).

e = degree of accuracy desired set at 0.05 probability level.

Hence,

$$n = \frac{(1.96)^2 \times 0.652(1-0.652)}{(0.05)^2} = 346.12$$

Adding a 5% non-response rate to the generated sample size, the operational size was brought to about 363 respondents.

3.6 Pre-testing

The data collection tool, a structured questionnaire, was pretested at the Yilo Manya Krobo District (Somanya) with twenty (20) respondents to authenticate the tool. This was aimed at establishing an easy way to understand the suitability of the questions posed, adequacy of response options provided, the need for additional or removal of existing questions to ensure that relevant data was collected. Appropriate revisions were made to the questionnaire where necessary before the actual data collection.

3.7 Data Handling

Two (2) research assistants were trained to assist the researcher in data collection. The structured questionnaire was used to gather data on the topic under study (knowledge and practices of prostate cancer screening among men). The research instrument (questionnaire) containing the data was coded, cleaned and saved in Microsoft Excel and saved in google drive prior to data analysis. The hard copy questionnaires containing the responses from the fieldwork have been saved in a locker for five years before disposing of them.

3.8 Data Analysis

STATA statistical software package (*StataCorp.2007. Stata Statistical Software. Release 14.* StataCorp LP, College Station, TX, USA) was used for cleaning, merging and analysis of the data from completed questionnaires. The data was then cleaned by running frequencies of the inconsistently coded data prior to analysing the data.

The categorical and numerical data were described using simple proportions and means. Respondents' socio-demographic characteristics factors, practices of prostate cancer, knowledge and screening uptake were analysed initially using simple proportions (frequencies and percentages). Chi-square test and/or cross-tabulation was used to assess the level of associations between knowledge of prostate cancer (dependent variable) and selected socio-economic factors (independent variables). Similarly, Chi-square analyses were done to test the association between independent variables (socio-demographic characteristics) and dependent variables (practices of prostate cancer). Multivariable logistic regression was used to test for the strength of association between the dependent and independent variables with significant associations. A confidence interval of 95% was used to show significant relations between the dependent variable and the independent variables.

3.9 Ethical Considerations

Ethical issues involved in the study were addressed by doing the following:

Ethical clearance: Ethical clearance was sought from the Ethical Review Committee of Ensign College of Public Health. Administrative permission was also sought from the Lower Manya Krobo Municipality Health Directorate of Ghana Health Service (GHS) to collect data from the various communities in the Municipality.

Potential risks/benefits: The researcher did not anticipate any potential risks of participation to participants. Most of the questions posed were void of questions that will incite any form of emotional stress. Participants who agreed to take part in this study benefitted by receiving free counselling on ways of preventing prostate cancer.

Privacy/Confidentiality: Participants were assured of confidentiality and privacy of the information provided. The respondents were allowed enough time and privacy to respond to the questions. In order to assure respondents of privacy of information, they were not asked to provide their names, telephone numbers and house addresses.

Voluntary withdrawal: Participants were assured that participation in this research was entirely voluntary. They were made free to withdraw consent and discontinue participation in this study at any time without prejudice from the study team.

3.10 Limitations of Study

The study relied on self-report from the respondents, and the information given by the respondents could not be verified; it was envisaged that there might be information bias.

The study considered men aged 40 years and above and could not include males from aged below 40 years, although their participation could have further substantiated the results

obtained. The findings will not be generalized to include all men in the Lower Manya Krobo Municipality.

3.11 Assumption

The study is based on the assumption that low knowledge levels and uptake of screening for prostate cancer among men in Lower Manya Krobo Municipality could be as a result of lower educational attainment and poor practices on self-vulnerability to prostate cancer. It was also assumed that the study participants were truthful of all the answers they were asked to provide.

CHAPTER FOUR

4.0 RESULTS

4.1 Introduction

The key findings from the data are presented in this chapter based on the study objectives. These include descriptive statistics on the socio-demographic characteristics of the study respondents and inferential statistics involving predictive models to assess the effect of selected independent variables on the chosen dependent variable. The results are presented in tables and graphs. The section on the assessment of knowledge of respondents on prostate cancer presents ten questions which span knowledge on risk factors, signs and symptoms of prostate cancer; knowledge on prostate cancer; and knowledge on treatment and prevention. This chapter also includes the findings on the perceptions of respondents and the importance of screening in reducing the incidence of prostate cancer as well as their self-reported practice of having themselves screened for the condition.

4.2 Socio-demographic Characteristics

A total of 363 men aged 40 years and above were recruited into the study. The majority (79.3%) of the respondents were of the Ga-Adangme ethnic group. The mean age of respondents was 53.7 ± 11.26. A little over two-fifth of the respondents (44.4%) were in the 40-49 years age bracket; 257 (70.8%) were married, and the majority (93.1%) reported to be Christians. The majority of the respondents 167 (46.0%) had attained JHS/Middle school education at the time of participation in the study. The informal or self-employment sector contributed the most (58.1%) respondents, and about 15.0% were unemployed or pensioners. It was revealed that 44.9% had 1-3 children followed by 36.6% with 4-7 children. The majority of the respondents (80.7%) had no family history of prostate cancer, and 73.5%

indicated their NHIS card had expired. The details of the characteristics of men in the Lower Manya Krobo Municipality (LMKM) are presented in Table 4.1.

Table 4.1: Socio-Demographic Characteristics of Men in the LMKM (n=363)

Variables	Frequency	Percentage
Age group		
40-49 years	161	44.4
50-59 years	107	29.5
60-69 years	53	14.6
>70 years	42	11.5
Marital status		
Single	53	14.6
Married	257	70.8
Divorced / Cohabiting/Widower	53	14.6
Educational attainment		
None	39	10.7
JHS/Middle	167	46.0
SHS/Voc/Tech	59	16.3
Tertiary	98	27.0
Religious affiliation		
Christian	338	93.1
Muslim	18	5.0
Traditionalist	7	1.9
Ethnicity of respondents		
Ga-Adangme	288	79.3
Ewe	41	11.3
Akan	24	6.6
Others*	10	2.8
Occupation		
Informal/self-employed	211	58.1
Formal/government	98	27.0
Unemployed/pensioner	54	14.9
Number of biological children		
None	39	10.7
1-3	163	44.9
4-7	133	36.6
7+	28	7.8
Family history of prostate cancer (PC)		
Yes	70	19.3
No	293	80.7
Holder of valid NHIS card		
Yes	96	26.5
No	267	73.5
Age (mean ± SD)	53.7 ± 11.26	

Source: *Field data, 2020*

* Dangomba Hausa

NHIS, National Health Insurance Scheme

SD Standard deviation

4.3 Practices of Prostate Cancer Screening

Most of the respondents (92.0%) indicated that they had heard about prostate cancer; however, only a few (17.0%) had screened for prostate cancer. The majority of the respondents (85.1%) agreed that prostate cancer screening is important while prostate cancer screening was not considered either painful (81.8%) or embarrassing (85.9%). While 88.4% of the respondents disagreed that screening for prostate cancer will aggravate the disease, 88.2% of the respondents indicated that screening for prostate cancer would make them healthy. Additionally, 89.5% of the respondents intimated that it was beneficial to screen for prostate cancer to know their status and clear their doubts. Close to 70.0% of the respondents opined that it was not expensive to have regular prostate cancer screening. Details of the practices of prostate cancer screening are shown in Table 4.2.

Table 4.2: Prostate Cancer Screening among Men in LMKM (n=363)

Variables	Freq.	Percentage
Have you ever heard about PC?		
No	29	8.0
Yes	334	92.0
Have you ever been screened for prostate cancer?		
No	302	83.2
Yes	61	16.8
Is it important to screen for prostate cancer?		
Agree	309	85.1
Don't know	54	14.9
Prostate cancer screening would be painful		
Agree	66	18.2
Don't agree	297	81.8
Going through prostate cancer screening is embarrassing		
Agree	51	14.1
Don't agree	312	85.9
Prostate cancer screening will aggravate the disease		
Agree	42	11.6
Don't agree	321	88.4

Going through PC screening will help me to be healthy		
Agree	320	88.2
Don't agree	43	11.8
PC screening is beneficial and will settle any ambiguities about whether I have the disease or not		
Agree	325	89.5
Don't agree	38	10.5
Regular examination for prostate cancer is expensive		
Agree	115	31.7
Don't agree	248	68.3

Source: *Field data, 2020*

4.3.1 Sources of Prostate Cancer Information

Details on the sources of prostate cancer information are presented in Figure 4.1. The majority of the respondents heard of prostate cancer from television, radio and internet while 17.4% heard of prostate cancer from health workers. Also, 15.3% indicated family and friends as their source of information about prostate cancer, and 11.0% of the respondents heard of prostate cancer from prostate cancer patients.

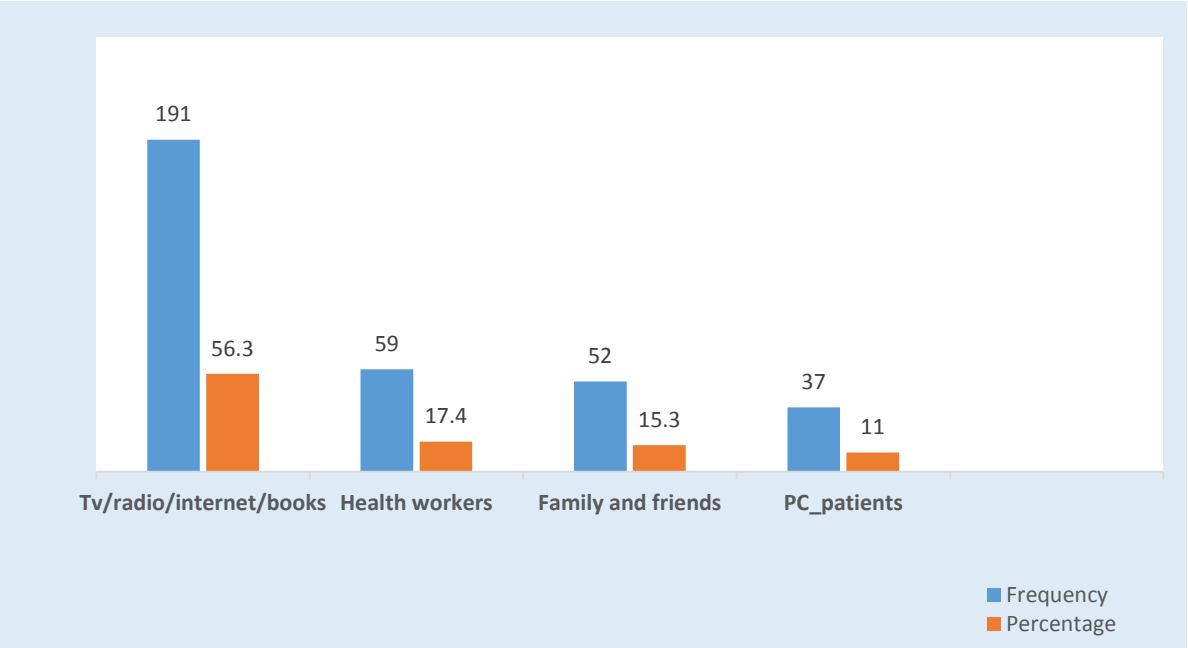

Figure 4.1 Chart showing sources of Prostate Cancer (PC) information

4.3.2 Types of Prostate Cancer Screening

The commonest form of prostate cancer screening done by most of the respondents is Prostate Specific Antigen (PSA) (79.0%); followed by Digital Rectal Examination (DRE) (15.8%) and Biopsy (5.2%) was least accessed by respondents. Details of the screening methods for prostate cancer are presented in Figure 4.2.

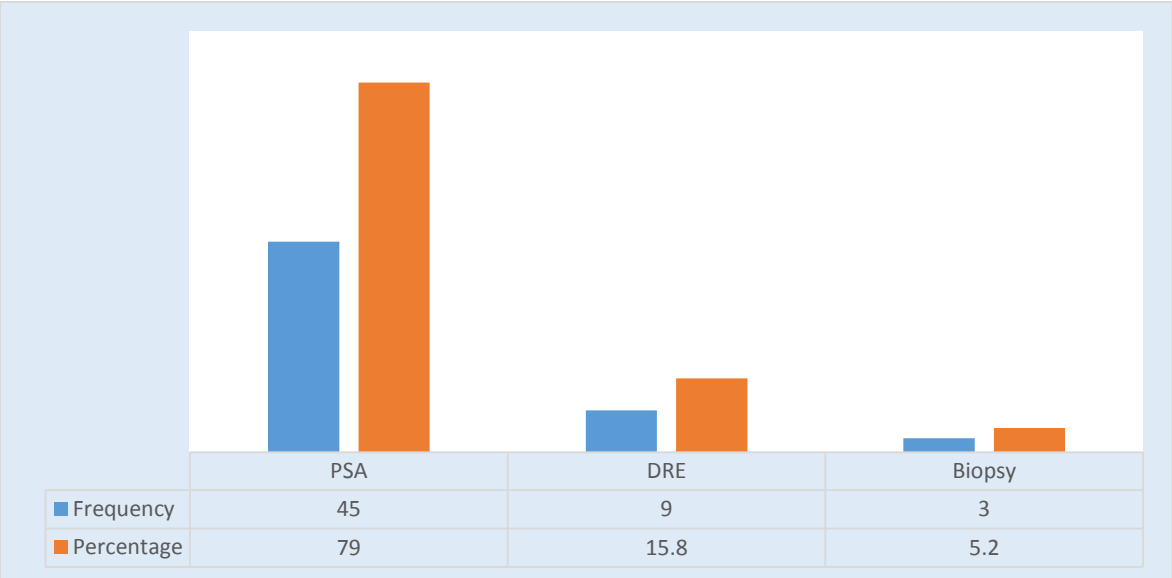

Figure 4.2 Chart showing types of Prostate Cancer Screening Undertaken by Men in LMKM

4.4 Bivariate Association between Prostate Cancer Screening Uptake and Socio-Demographic Characteristics

Except for age group, marital status, ethnicity and number of biological children, all socio-demographic characteristics of respondents were identified to be significantly associated with prostate cancer screening uptake among men in the Lower Manya Krobo Municipality ($p<0.05$). Educational attainment was identified to be associated with a higher proportion of prostate cancer screening uptake. Similarly, religious affiliation was identified to be associated with a higher proportion of prostate cancer screening uptake. Additionally, the occupation of respondents was identified to be associated with a higher proportion of prostate cancer screening uptake. Respondents without any history of prostate cancer were more

likely to take up prostate cancer screening than respondents with a family history of prostate cancer (84.0% vs 16.0%, p= 0.001). Also, respondents with valid NHIS card were more likely to take up prostate cancer screening compared with a respondent with invalid NHIS card (71.8% vs 28.2%, p= 0.057). The details of the assessed association between socio-demographic characteristics and prostate cancer screening uptake among men in Lower Manya Krobo Municipality are shown in Table 4.3

Table 4.3: Test of Association between Socio-Demographic Characteristics and prostate cancer Screening Uptake Among Men in LMKM (n=363)

Variables	Prostate cancer uptake		p-value
	No n (%)	Yes n (%)	
Age group			0.190
40-49 years	140 (46.5)	21 (34.4)	
50-59 years	88 (29.2)	18 (29.5)	
60-69 years	40 (13.3)	13 (21.3)	
>70 years	33 (11.0)	9 (14.8)	
Marital status			0.121
Single	40 (13.2)	13 (21.3)	
Married	213 (70.8)	43 (70.5)	
Divorced/Cohabiting/Widower	48 (16.0)	5 (8.2)	
Educational attainment			0.018*
None	36 (12.0)	3 (4.9)	
JHS/Middle	145 (48.2)	21 (34.4)	
SHS/Voc/Tech	47 (15.6)	12 (19.7)	
Tertiary	73 (24.2)	25 (41.0)	
Religious affiliation			0.032*
Christian	283 (94.0)	54 (88.5)	
Muslim	15 (5.0)	3 (4.9)	
Traditionalist	3 (1.0)	4 (6.6)	
Ethnicity of respondents			0.247
Ga-Adangme	244 (76.7)	44 (72.1)	
Ewe	31 (10.3)	10 (16.4)	
Akan	19 (6.3)	4 (6.6)	
Others$^{\alpha}$	7 (2.3)	3 (4.9)	
Occupation			0.053*
Informal/self-employed	183 (60.8)	27 (44.3)	
Formal/government	76 (25.2)	22 (36.0)	

Unemployed/pensioner	42 (14.0)	12 (19.7)	
Number of biological children			0.316
None	30 (10.0)	9 (14.8)	
1-3	137 (45.5)	25 (41.0)	
4-7	108 (35.9)	25 (41.0)	
7+	26 (8.6)	2 (3.2)	
Family history of PC			0.001*
No	253 (84.0)	39 (63.9)	
Yes	48 (16.0)	22 (36.1)	
Holder of valid NHIS card			0.057
No	85 (28.2)	10 (16.4)	
Yes	216 (71.8)	51 (83.6)	

N (%) column total α Dangomba Hausa NHIS, National Health Insurance Scheme

4.5 Knowledge of Prostate Cancer

Just as 75.2% of the respondents were aware that prostate cancer is curable, 83.5% also disagreed to the fact that prostate cancer has no known cause. Also, more than half of the respondents (64.2%) agreed that prostate cancer might not present with early signs and symptoms and 80.4% of the respondents agreed that difficulty in urinating is one of the warning signs of prostate cancer. However, about 55.4% disagreed that weakness and numbness in the leg is a sign of developing prostate cancer. On the one hand, 59.5% agreed that pain in the waist and back is a sign of developing prostate, while 51.5% of the respondents agreed that men aged 40 years and below are at risk of developing prostate cancer. Furthermore, 62.0% of the respondents agreed that men with a family history of prostate cancer are more prone to suffering from the disease. Though 58.1% of the respondents could identify some screening methods, 41.9% could not identify any. In raddition to the screening methods, more than half of the respondents (54.8%) agreed that prostate cancer could be treated through surgery. Details of the knowledge on prostate cancer are presented in Table 4.4.

Table 4.4 Knowledge of prostate cancer among men in LMKM (n=363)

Variables	Freq.	Percentage
Is prostate cancer curable?		
No	90	24.8
Yes	273	75.2
Prostate cancer has no known cause?		
Agree	60	16.5
Don't agree	303	83.5
PC may not present with signs and symptoms at the early stages?		
Agree	130	35.8
Don't agree	233	64.2
Difficulty in urinating may be a warning sign of prostate cancer		
Agree	292	80.4
Don't agree	71	19.6
Weakness and numbness in the leg and feet may be a warning sign of PC		
Agree	162	44.6
Don't agree	201	55.4
Prostate cancer may present with pain in the waist and back		
Agree	216	59.5
Don't agree	147	40.5
Men aged 40 and below are not at risk of developing PC than older men		
Agree	176	48.5
Don't agree	187	51.5
Men who have a previous history of PC in the family are at high risk		
Agree	225	62.0
Don't agree	138	38.0
Prostate-specific antigen (PSA) and Digital Rectal Examination (DRE) are screening methods for prostate cancer		
Agree	211	58.1
Don't agree	152	41.9
Prostate cancer can be treated through surgery		
Agree	199	54.8
Don't agree	164	45.2

Source: *Field Data, 2020*

4.6 Bivariate Association between Knowledge on Prostate Cancer and Socio-Demographic Characteristics

From the Chi-square tests, religious affiliation, number of biological children, age group, marital status, educational attainment, ethnicity, occupation, family history of prostate cancer and valid NHIS cardholders were identified not to be significantly associated with knowledge level on prostate cancer ($p>0.05$). Details of the association between respondents' characteristics and knowledge on prostate cancer are presented in Table 4.5

Table 4.5: Association between Socio-Demographic Characteristics and Knowledge on PC (n=363)

Variables	Knowledge on PC		Chi-square	p-value
	Poor, n (%)	Good, n (%)		
Age group			3.30	0.348
40-49 years	88 (44.7)	73 (44.0)		
50-59 years	64 (32.5)	43 (25.9)		
60-69 years	26 (13.2)	27 (16.3)		
>70 years	19 (9.6)	23 (13.9)		
Marital status			0.28	0.871
Single	27 (13.7)	26 (15.7)		
Married	141 (71.6)	116 (69.9)		
Divorced / Cohabiting/Widower	29 (14.7)	24 (14.5)		
Educational attainment			6.16	0.104
None	24 (12.2)	15 (9.0)		
JHS/Middle	95 (48.2)	72 (43.4)		
SHS/Voc/Tech	35 (17.8)	24 (14.5)		
Tertiary	43 (21.8)	55 (33.1)		
Religious affiliation			5.48	0.065
Christian	178 (90.3)	160 (96.4)		
Muslim	13 (6.6)	5 (3.0)		
Traditionalist	6 (3.1)	1 (0.6)		
Ethnicity of respondents			2.28	0.517
Ga Adangme	154 (78.2)	134 (80.7)		
Ewe	26 (13.2)	15 (9.1)		
Akan	13 (6.6)	11 (6.6)		
Others$^{\alpha}$	4 (2.0)	6 (3.6)		

Occupation			1.77	0.413
Informal/self-employed	119 (60.4)	92 (55.4)		
Formal/government	53 (26.9)	45 (27.1)		
Unemployed/pensioner	25 (12.7)	29 (17.5)		
Number of biological children			7.34	0.062
None	20 (10.2)	19 (11.4)		
1-3	84 (42.6)	79 (47.6)		
4-7	71 (36.0)	62 (37.4)		
7+	22 (11.2)	6 (3.6)		
Family history of PC			1.13	0.287
No	163 (82.7)	130 (78.3)		
Yes	34 (17.3)	36 (21.7)		
Holder of valid NHIS card			3.56	0.059
No	60 (30.5)	36 (21.7)		
Yes	137 (69.5)	130 (78.3)		

α Dangomba Hausa

4.7 Perception on Prostate Cancer

Details of the perceptions of respondents are presented in Table 4.6. More than half of the respondents (55.1%) agreed that prostate cancer is not a sexually transmitted infection. However, 89.3% of the respondents agreed that prostate cancer could kill, but once prostate cancer is treated, 83.5% agreed that living a normal life is guaranteed. Just as most of the respondents (52.6%) believed they were not at risk of getting prostate cancer, 81.8% believed being diagnosed with prostate cancer is not a 'death warrant'. Although most of the respondents (90.9%) disagreed that prostate cancer is a taboo or a curse; 87.3% believed that prostate cancer is curable when detected early. Most of the respondents (71.9%) agreed that ageing is a risk factor for getting prostate cancer. The majority of the respondents (71.1%) disagreed that prostate cancer is painful and discourages seeking early treatment. Also, 75.8% did not perceive regular prostate cancer screening as an indication of suffering from prostate cancer.

Table 4.6: Perception on Prostate Cancer among Men in LMKM (n=363)

Variables	Freq.	Percentage
Prostate cancer cannot be sexually transmitted		
Agree	200	55.1
Don't agree	163	44.9
Prostate cancer can lead to death		
Agree	324	89.3
Don't agree	39	10.7
One can live a normal life after treatment of prostate cancer		
Agree	303	83.5
Don't agree	60	16.5
I believe I am at high risk of getting prostate cancer		
Agree	172	47.4
Don't agree	191	52.6
I believe that if you are diagnosed with prostate cancer, then you are doomed to die.		
Agree	66	18.2
Don't agree	297	81.8
Prostate cancer is as a result of a curse, and it is seen as a taboo		
Agree	33	9.1
Don't agree	330	90.9
Prostate cancer has no cure even when it is detected early		
Agree	46	12.7
Don't agree	317	87.3
One is more likely to get prostate cancer when one passes the age of 50		
Agree	261	71.9
Don't agree	102	28.1
PC treatment is painful and it deters affected persons from seeking timely treatment		
Agree	105	28.9
Don't agree	258	71.1
Regular check-up for prostate cancer indicates that one has prostate cancer		
Agree	88	24.2
Don't agree	275	75.8
Prostate cancer can be treated when found early		
Agree	333	91.7
Don't agree	30	8.3

Source: *Field data, 2020*

4.8 Bivariate Association between Perception on Prostate Cancer and Socio-Demographic Characteristics

From the Chi-square tests, age group, marital status, ethnicity, occupation, number of biological children, and holders of valid NHIS cards were identified not to be statistically significant with perception on prostate cancer. Details of the association between respondents' characteristics and knowledge on prostate cancer are presented in Table 4.7

Religious affiliation and family history of prostate cancer were identified to be significantly associated with perception on prostate cancer ($p<0.05$). Perception on prostate cancer was significantly higher among JHS/Middle Schools leavers compared to those without formal education (53.1% vs 9.5%, p=0.064). Christians were identified to have a significantly good perception on prostate cancer compared to Muslims (98.3% vs. 1.7%, p= 0.000). Respondents who had a family history of prostate cancer were identified to have significantly good perceptions than respondents without prostate cancer history in their families (78.3% vs. 21.7%, p=0.012).

Table 4.7 Association between Socio-Demographic Characteristics Perception of Prostate Cancer Among Men in the LMKM (n=363)

	Perception on prostate cancer			
Variables	**Poor, n (%)**	**Good, n (%)**	**Chi square**	**p-value**
Age group			3.95	0.267
40-49 years	85 (46.2)	76 (42.5)		
50-59 years	59 (32.1)	48 (26.8)		
60-69 years	22 (12.0)	31 (17.3)		
>70 years	18 (9.8)	24 (13.4)		
Marital status			2.86	0.240
Single	31 (16.9)	22 (12.3)		
Married	123 (66.9)	134 (74.9)		
Divorced / Cohabiting/Widower	30 (16.2)	23 (12.8)		
Educational attainment			7.26	0.064
None	22 (12.0)	17 (9.5)		
JHS/Middle	72 (39.1)	95 (53.1)		

SHS/Voc/Tech	35 (19.0)	24 (13.4)		
Tertiary	55 (29.9)	43 (24.0)		
Religious affiliation			15.51	0.000*
Christian	162 (88.0)	176 (98.3)		
Muslim	15 (8.2)	3 (1.7)		
Traditionalist	7 (3.8)	0 (0.0)		
Ethnicity of respondents			0.83	0.842
Ga Adangme	143 (72.8)	145 (77.1)		
Ewe	22 (12.0)	19 (10.6)		
Akan	14 (7.6)	10 (5.6)		
Others$^{\alpha}$	5 (2.7)	5 (2.8)		
Occupation			1.26	0.528
Informal/self-employed	102 (55.4)	109 (60.9)		
Formal/government	54 (29.4)	44 (24.6)		
Unemployed/pensioner	28 (15.2)	26 (14.5)		
Number of biological children			3.08	0.379
None	24 (13.0)	15 (8.4)		
1-3	76 (41.3)	87 (48.6)		
4-7	69 (37.5)	64 (35.8)		
7+	15 (8.2)	13 (7.3)		
Family history of PC			6.37	0.012*
Yes	158 (85.9)	135 (75.4)		
No	26 (14.1)	44 (24.6)		
Holder of valid NHIS card			1.07	0.302
No	53 (28.8)	43 (24.0)		
Yes	131 (71.2)	136 (76.0)		

N (%) column total ϕ Fisher's exact α Dangomba Hausa

4.9 Multivariate Association between Dependent and Independent Variables

Details of the multivariable association between dependent variables (practices, knowledge and perception of prostate cancer) and independent variables (socio-demographic characteristics of respondents) is shown in Table 4.8.

The age grouping of the respondents was identified to be significantly associated with practices of prostate cancer. Respondents aged 60-69 years were about 2.17 times more likely to engage in good prostate cancer practices compared to their counterparts in the younger age

group (COR: 2.17, 95% [CI]: 0.99, 4.71). No significant association was observed between age group and knowledge and perception of prostate cancer. Marital status was identified to be significantly associated with practices of prostate cancer. Respondents who were divorced/cohabiting/widowed were 0.68 times less likely to engage in good prostate cancer practices compared to those married (COR: 0.32, 95% CI: 0.11, 0.98). No significant association was observed between marital status and knowledge and perception of prostate cancer. Educational attainment was identified to be significantly associated with practices and knowledge of prostate cancer. This means respondents with tertiary education were 4.11 times more likely to engage in good prostate cancer practices compared to those with no educational qualification. (COR: 4.11, (1.16, 14.52). Furthermore, respondents with tertiary education were 3.43 times more likely to have adequate knowledge on prostate cancer compared with those with less educational qualification (Adjusted Odds Ratio [AOR]:3.43, 95%CI: 1.23, 9.59). No significant association was observed between educational attainment and the perception of prostate cancer.

There was a 0.31 times less likely chance for Traditional worshippers to engage in good prostate cancer practices compared to Muslims (AOR: 0.69, 95% CI: 4.03, 236.72). Conversely, there was a 0.89 times less likely chance for Traditional worshippers to have good knowledge on prostate cancer compared to others (AOR: 0.11, 95% CI: 0.01, 1.19). Similarly, there was 0.76 times less likely chance for Muslims to have good perception on prostate cancer compared to others (AOR: 0.24, 95% CI: 0.06, 0.93).

Additionally, pensioners were 1.94 times more likely to engage in good prostate cancer practices compared with the others (COR: 1.94, 95% CI: 0.91, 4.13). Conversely, formal/government employees were 0.51 times less likely to have good knowledge on prostate cancer compared to others (AOR: 0.49, 95% CI: 0.24, 1.01). Again, there was 0.62

times less likely chance for formal/government employees to have a good perception on prostate cancer compared to others (AOR: 0.38, 95% CI: 0.14, 1.02).

Also, there was 0.80 times less likely chance for respondents with seven children and more to engage in good prostate cancer practices compared with the others (AOR: 0.20, 95% CI: 0.03, 1.47). Conversely, there was 0.79 times less likely chance for respondents with seven children and more to have good knowledge on prostate cancer compared to others (AOR: 0.21, 95% CI: 0.06, 0.74).

Respondents with a family history of prostate cancer were 4.05 times more likely to engage in good prostate cancer practices compared to respondents with no family history of prostate cancer (AOR: 4.05, 95% CI: 2.01, 8.19). Yet again, respondents with a family history of prostate cancer were 2.21 times more likely to have a good perception on prostate cancer compared to others (AOR: 2.21, 95% CI: 1.24, 3.94). Respondents with valid NHIS cards were 2.01 times more likely to engage in good prostate cancer practices compared to others (COR: 2.01, 95% CI: 0.97, 4.13). Likewise, respondents with valid NHIS cards were 1.58 times more likely to have good knowledge on prostate cancer compared to their counterparts without a valid NHIS card. (COR: 1.58, 95% CI: 0.98, 2.55).

Table 4.8 Multivariate Logistic Regression of Practices, Knowledge and Perception on PC with Socio-Demographic Characteristics

Variables	Practices of PC		Knowledge on PC		Perception on PC	
	AOR (95%CI)	**COR (95%CI)**	**AOR (95%CI)**	**COR (95%CI)**	**AOR (95%CI)**	**COR (95%CI)**
Age group						
40-49 years	Ref	Ref	Ref	Ref	Ref	Ref
50-59 years	**2.36 (1.07, 5.21)**	1.36 (0.69, 2.70)	0.96 (0.56, 1.65)	0.81 (0.49, 1.33)	0.84 (0.49, 1.45)	0.91 (0.56, 1.49)
60-69 years	**5.74 (1.96, 16.77)**	**2.17 (0.99, 4.71)**	1.91 (0.84, 4.33)	1.25 (0.67, 2.33)	2.61 (1.11, 6.11)	1.58 (0.84, 2.95)
>70 years	**7.84 (1.86, 33.04)**	1.82 (0.76, 4.33)	2.55 (0.85, 7.02)	1.46 (0.74, 2.89)	3.37 (1.13, 10.02)	1.49 (0.75, 2.96)
Marital status						
Single	Ref	Ref	Ref	Ref	Ref	Ref
Married	**0.39 (0.16, 0.94)**	0.62 (0.31, 1.26)	0.77 (0.39, 1.50)	0.85 (0.47,1.54)	1.38 (0.70, 2.73)	1.54 (0.84, 2.79)
Divorced/Cohabiting/Widower	**0.12 (0.03, 0.48)**	**0.32 (0.11, 0.98)**	0.89 (0.38, 2.10)	0.86 (0.40,1.84)	1.00 (0.42, 2.42)	1.08 (0.50, 2.33)
Educational attainment						
None	Ref	Ref	Ref	Ref	Ref	Ref
JHS/Middle	2.45 (0.55, 10.88)	1.74 (0.49, 6.15)	1.27 (0.58, 2.77)	1.21 (0.59, 2.48)	1.51 (0.68, 3.33)	1.71 (0.85, 3.45)
SHS/Voc/Tech	**4.76 (0.96, 23.70)**	3.06 (0.86, 11.67)	1.16 (0.46, 2.93)	1.11 (0.48, 2.51)	0.91 (0.35, 2.35)	0.89 (0.39, 2.01)
Tertiary	**5.29 (1.02, 27.30)**	**4.11 (1.16, 14.52)**	3.43 (1.23, 9.59)	2.05 (0.96, 4.37)	1.04 (0.37, 2.87)	1.01 (0.48, 2.14)
Religious affiliation						
Christian	Ref	Ref	Ref	Ref	Ref	Ref
Muslim	1.96 (0.42, 9.23)	1.05 (0.29, 3.74)	0.41 (0.12, 1.36)	0.43 (0.15, 1.23)	**0.24 (0.06, 0.93)**	**0.18 (0.05, 0.65)**
Traditionalist	**30.90 (4.03, 236.72)**	**6.99 (1.52, 32.11)**	**0.11 (0.01, 1.19)**	0.19 (0.02, 1.56)	-	-
Occupation						
Informal/self-employed	Ref	Ref	Ref	Ref	Ref	Ref
Formal/government	1.44 (0.59, 3.49)	**1.96 (1.05, 3.66)**	**0.49 (0.24, 1.01)**	1.10 (0.68, 1.78)	0.79 (0.39, 1.58)	0.76 (0.47, 1.23)
Unemployed/pensioner	0.52 (0.15, 1.84)	**1.94 (0.91, 4.13)**	0.67 (0.26, 1.71)	1.50 (0.82, 2.73)	**0.38 (0.14, 1.02)**	0.87 (0.48, 1.58)
Number of biological children						
None	Ref	Ref	Ref	Ref	Ref	Ref
1-3	0.88 (0.29, 2.71)	0.61 (0.26, 1.43)	0.73 (0.32, 1.63)	0.99 (0.49, 1.99)	0.97 (0.42, 2.21)	1.83 (0.90, 3.74)
4-7	1.10 (0.33, 3.70)	0.77 (0.33, 1.83)	0.69 (0.29, 1.65)	0.92 (0.45, 1.88)	0.63 (0.26, 1.53)	1.48 (0.72, 3.10)
7+	**0.20 (0.03, 1.47)**	**0.26 (0.05, 1.30)**	**0.21 (0.06, 0.74)**	**0.29 (0.10, 0.86)**	0.63 (0.20, 2.02)	1.39 (0.52, 3.71)
Family history of PC						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	**4.05 (2.01, 8.19)**	**2.97 (1.62, 5.46)**	1.40 (0.80, 2.45)	1.33 (0.79, 2.24)	**2.21 (1.24, 3.94)**	**1.98 (1.16, 3.39)**
Holder of valid NHIS card						
No	Ref	Ref	Ref	Ref	Ref	Ref
Yes	1.31 (0.78, 4.21)	**2.01 (0.97, 4.13)**	1.34 (0.80, 2.26)	**1.58 (0.98, 2.55)**	1.28 (0.75, 2.17)	1.28 (0.80, 204)

COR, Crude odds ratio; CI, Confidence interval; AOR, Adjusted odds ratio, Ref, Reference category

CHAPTER FIVE

5.0 DISCUSSION

5.1 Introduction

This chapter discusses the findings of the study with the intention of addressing the specific objectives of the study, thus, self-reported practices of prostate cancer screening uptake, knowledge on prostate cancer and perception on prostate cancer. The chapter also compares the findings of this study to other studies. Also, the reasons contributing to the findings of this study are discussed.

5.2 Characteristics of Respondents

This study assessed the socio-demographic characteristics of men aged 40 years and above in Lower Manya Krobo Municipality (LMKM) on their knowledge, perception and practices of prostate cancer screening uptake as against other studies that focused on hospital-based settings. The focus on men aged 40 years and above was because men in this age bracket are at a higher risk of developing prostate cancer compared to younger men. Though the exact cause/s of prostate cancer remains unknown, old age is considered a risk factor (American Cancer Society [ACS], 2014). Subsequently, men aged 40 years and above in the LMKM, who are particularly aware of their prostate cancer status, are good candidates to serve as ambassadors, educators, advocates and role models to influence their communities in promoting prostate cancer screening uptake and prevention to reduce the associated morbidity and mortality.

Ethnicity is considered a risk factor for developing prostate cancer (Alsharef *et al.,* 2012). There are values and beliefs, such as seeking medical care, among others, that prevent early prostate cancer screening uptake. Such values and beliefs are worrying such that they can influence the understanding of men aged above 40 years to take up screening to know their

status and early treatment thereof should they test positive. Similar to the influence of ethnicity, religion can influence the early uptake of prostate cancer screening negatively as explained by Pedersen *et al.,* (2012) that the perception of fears and taboos among people of a particular ethnic descent, affect the willingness of its men to talk to their doctors about prostate cancer. The belief of some men in the healing power of the Supreme Being, God, supersedes the potency of the health system, thus rely more on spirituality to be "free" from developing prostate cancer than screening to know their status.

Education, particularly JHS/Middle school, was attained by most of the respondents (46.0%). This is an indication of formal education and by extension the ability to read and make informed decisions. Taking up early prostate cancer screening or seeking early treatment can be influenced by formal educational attainment. Also, occupation can be a predisposing factor for developing prostate cancer based on the nature of work. Engaging in sedentary work can be psychologically draining as exercises are non-existent in their daily lives. This can lead to depression and anxiety, thus increasing the risk of developing depression. For example, an occupational lifestyle which permits carrying mobile phones in the pocket for longer days increases the risk of prostate cancer (Fitzpatrick *et al.*, 2009).

There is an unconventional knowledge that presupposes that prostate cancer is more likely to rear its head among men who are not sexually active. This unconventional knowledge agrees with Etawo *et al.* (2012) that elevated levels of testosterone and decreased levels of oestradiol in the blood are risk factors for developing prostate cancer. Another school of thought has it that, having several sexual partners can lead to developing prostate cancer (Nakandi *et al.,* 2013). One common way of developing prostate cancer is through the family line, thus genetic factors. Due to the 'transfer' of chromosomes from parents to children, being born into families with a history of prostate cancer makes it more likely for one to develop the condition (Leitzmann & Rohrmann, 2012).

Considering the high cost of seeking medical care in Ghana, the NHIS was introduced to alleviate the burden of the 'poor'; however, the failure to renew NHIS cards hampers regular check-ups, a situation that contributes to late screening for prostate cancer and possibly, its treatment.

5.3 Practices of Prostate Cancer

Generally, self-reported practices of prostate cancer were good; however, uptake of prostate cancer screening was low, with only 17.0% of respondents self-reporting to have ever been screened for prostate cancer. This is consistent with a study undertaken in Australia which reported that men have a negative attitude towards screening for prostate cancer due to reasons such as the uncomfortable nature of Digital Rectal Examination (DRE) and the blood drawn for Prostate Specific Antigen (PSA) (Sanderson *et al.,* (2013). The low prostate cancer screening can exacerbate the rate at which patients can be treated and prevent other comorbidities thereof. This is evident by screening in the asymptomatic stages and early therapies for the reduction of deaths due to breast, lung, colon and cervical cancers (Kolahdooz *et al.,* 2014). The low uptake of prostate cancer screening in the LMKM among men aged 40 years and above irrespective of the good self-reported practices can partly be ascribed to low knowledge on the screening guidelines as well as the absence of a well laid out program targeting them at no cost. This has the tendency to negatively affect efforts to improve uptake of screening among men who are at risk of developing the disease because of their advancing age.

Additionally, religious affiliation, educational attainment, occupation, family history of prostate cancer and valid NHIS cardholders were identified to be significantly associated with practices of prostate cancer screening uptake among the studied population. On the one hand, the role of religious beliefs and church support were identified as important in prostate cancer

prevention and screening behaviors among African-American men (Holt, Wynn & Darrington, 2009). Religious beliefs are the most common reasons for non-participation in prostate cancer screening in Sub-Saharan Africa (Rebbeck, *et al.,* 2011). In Nigeria as well, religion influences beliefs and this in turn influence health behavior in taking up early screening (Akgibe & Akigbe, 2012).

Educational attainment was identified to be significantly associated with a higher proportion of prostate cancer screening uptake. The lack of information on prostate cancer screening uptake as reported by Jo *et al.,* (2013), is as a result of complete lack of information about risk factors, signs and symptoms. This is an indication that being educated formally makes prostate cancer screening an easy decision. Thus, information on the dangers of the disease is easy to understand in order to take up the screening to know their status. Hence, an intervention aimed at ensuring regular uptake of screening can target these 'educated' men to disseminate among their peers. This is because high level of awareness on the importance of prostate cancer screening is associated with high level of formal education.

Additionally, the occupation of respondents was identified to be associated with a higher proportion of prostate cancer screening uptake. This is consistent with a study done in Nigeria by Oranusi *et al.,* (2012) which reported that the majority of public servants correctly reported one or more prostate cancer symptoms with the most common symptom found being the difficulty in urinating. To become a public servant or government employee, it is expected that one possesses some level of formal education, hence, implementation of institutional/occupational programs to promote early and sustained screening would probably assist in increasing awareness on the early uptake of prostate cancer screening and hopefully translate into improving their ability to educate other men in the community.

Respondents with a reported family history of prostate cancer were about four (4) times more likely to take up prostate cancer screening than respondents without a family history of prostate cancer. There is evidence that people with a family history of prostate cancer are at risk for the disease (ACS, 2014). This suggests that there is a high level of awareness among men with a family history of prostate cancer to take up early screening (Hevey *et al.,* 2009). There is some level of ease with which men with a family history of the disease take up prostate cancer screening as they age older in order to know their status and to seek early treatment. Alternatively, there is a low level of urgency among men without a family history to take up early prostate cancer screening because of their lack of knowledge on the dangers the disease have on their wellbeing.

Also, respondents with valid National Health Insurance Scheme (NHIS) cards were more likely to take up prostate cancer screening compared with the respondents with invalid NHIS cards. This is in line with the International Network for Cancer Treatment and Research [INCTR], (2013) which concluded that health care and cancer management program and government fund for health care expenditure are crucial for better healthcare delivery. The NHIS was instituted to cut down the high cost of seeking medical care; thus, there is an increased chance of men with valid NHIS cards to take up routine screening particularly when they are not paying for the consultation. There are enough health professionals who have expertise in prostate cancer care while most hospitals have effective prostate cancer screening programs, but the problem remains the fact that the PSA test has not been enrolled onto the National Health Insurance Scheme thus, making it impossible for most men to get screened. In order to increase prostate cancer awareness, it is important that the cost of screening is "captured" in the National Health Insurance Scheme. This will increase enrollment and the uptake of screening among men aged 40 years and above.

The majority of the men in this study heard of prostate cancer from television, radio and internet while 17.4% heard of prostate cancer from health workers similar to other studies in which most of the respondents obtained their information from health professionals, the media and friends or relatives (Liu *et al.*, 2017; Elamurugan *et al.*, 2019; Sothy *et al.*, 2018). Only 5.2% of the men in this study had taken up Biopsy, a type of prostate cancer screening test. This further elucidates the poor prostate cancer screening uptake among men in LMKM.

5.4 Knowledge on Prostate Cancer

Generally, the level of knowledge of men in LMKM on prostate cancer was good; thus, 75.2% of the respondents were aware that prostate cancer is curable. This is similar to previous studies which reported a high degree of awareness about prostate cancer (Hevey *et al.,* 2009; Oranusi *et al.,* 2012) but contrary to previous studies which reported low levels of knowledge about prostate cancer in Australia (Sanderson, Wijesinha, & Jones, 2013), United States of America (Chan *et al.,* 2011; Pedersen *et al.,* 2012), Uganda (Nakandi *et al.,* 2013) and Nigeria (Jo *et al.,* 2013). Knowledge on prostate cancer among men in this study was enough, contrary to findings from previous studies that concluded that the general public knew little about prostate cancer (Nakandi *et al.,* 2013; Pedersen *et al.,* 2012). There has been a lack of information or understanding of the availability of screening or testing for prostate cancer in some studies (Chan *et al.,* 2011; Allen *et al.,* 2007; Watson *et al.,* 2006), which is one of the reasons why most cases of prostate cancer are reported in advanced stages. However, there may be increased awareness of prostate cancer through educational services and/or treatments (Chan *et al.,* 2011).

Though the knowledge of men on prostate cancer was good, knowledge on the screening guidelines was low, a situation that affects early uptake of prostate cancer screening. This is troubling because it might impact negatively on their ability to ‘spread’ or educate other men

on the need and significance of getting screened as previous studies have demonstrated that knowledge is a powerful and an effective 'weapon' in the reduction, prevention and early detection of prostate cancer among men (Cancer Association of South Africa [CANSA], 2013; INTCTR, 2013).

The 'adequacy' of knowledge among men in this study is attributable to the protracted and sustained information sharing on the traditional media and information centres by local drug manufacturers and sellers targeting men in the informal sector with the belief that they do not have enough knowledge. Likewise, most educational programs on prostate cancer are community-based or targeted at the general population. This may also explain the quality of knowledge men in LMKM have on prostate cancer.

More importantly, religious affiliation, number of biological children, age group, marital status, educational attainment, ethnicity, occupation, family history of prostate cancer and valid NHIS cardholders were identified not to be significantly associated with knowledge level on prostate cancer screening uptake among men in the LMKM. This is an indication that knowledge acquisition of prostate cancer is hinged on the personal characteristics of men in this study. Stated differently, high awareness on the need to take up early prostate cancer screening is not defined by personal characteristics or demographics. Increased knowledge or awareness on prostate cancer is reported to be an independent indicator of men taking prostate cancer screening, despite suggesting that either very low or high rates of information about prostate cancer may also prevent men's attempts to check for prostate cancer Watson *et al.,* (2009). The increased levels of knowledge among men in this study is encouraging because these men are equipped with the correct information/knowledge to promote good health, particularly, taking up early prostate cancer screening in the LMKM.

Despite the finding that there was no observed significant association between respondents' educational level and knowledge of prostate cancer, respondents, with higher educational levels exhibited better knowledge levels than those with lower educational level. Adequate knowledge level on the disease can impact positively on the readiness and confidence of other men with lower levels of educational attainment to take up an early screening to reduce morbidity and mortality. Thus, men in this study with higher education are more likely to take up early prostate cancer screening, hence knowing their status to seek early treatment.

5.5 Perception on Prostate Cancer

There was a general positive perception of the significance of prostate cancer screening in plummeting the disease among men in LMKM with 55.1% of them positively perceiving that prostate cancer is not a sexually transmitted infection, and 90.9% who did not consider the disease a taboo. This is consistent with previous studies' findings (Nakandi *et al.,* 2013; Fitzpatrick *et al.,* 2009). This creates a perfect premise to improve screening practices while educating other men in the Municipality as this study has shown that positive perception can translate into significant suitable practices especially, when knowledge levels are adequate as evidenced by other studies (CANSA, 2013; INTCTR, 2013).

Additionally, educational attainment, religious affiliation and family history of prostate cancer were identified to be significantly associated with perception of prostate cancer. The perception of prostate cancer was significantly higher among JHS/Middle Schools leavers compared to those without formal education. This creates the impression that there is inadequate exposure, in terms of good perception, on prostate cancer among men without any formal education. The perception of the risk of developing prostate cancer is influenced by educational attainment and personal experience (Matthew *et al.,* 2011). Furthermore, men

who think they have a higher risk of prostate cancer experience depression and anxiety that affect their daily lives (Matthew *et al.,* 2011).

Christians were identified to have a significantly good perception of prostate cancer compared to Muslims. This is contrary to the conclusion reached by Pedersen *et al.,* (2012), that the perceptions of fears and taboos, affect the willingness of men to talk to their doctors about prostate cancer. It was found that, men with entrenched beliefs in a deity are fearful of the harm that will befall them should they seek 'foreign' treatment, thus preventing them from screening for the disease early. Thus, wearing of amulets was seen as a way to prevent and treat diseases. In addition, religious and cultural beliefs were the most common reasons for non-participation in prostate cancer screening (Rebbeck, Zeigler-Johnson, Heyns & Gueye, 2011). However, the findings in this study are in line with a study by Holt, Wynn and Darrington, (2009), which stressed on the role of religious beliefs and church support in prostate cancer prevention and screening behaviors. Similarly, it was concluded in a study that examined the role of religious involvement with regard to prostate cancer screening that, those with religious affiliations were more likely to participate in screening than those without religious affiliations (Holt *et al*., 2009).

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents conclusions which directly answer the specific objectives of the study based on the findings and makes recommendations to increase the practices, knowledge and perceptions regarding prostate cancer and its screening and prevention.

6.2 Conclusions

The practice of being screened for prostate cancer among men aged 40 years and above in LMKM was good. However, only 17.0% of respondents self-reported to have ever been screened for prostate cancer. Respondents who were affiliated with a religion, had formal education, were governmental workers, had a family history of prostate cancer and were valid NHIS cardholders underwent more screening for prostate cancer in the LMKM.

Generally, the level of knowledge of men in Lower Manya Krobo Municipality on prostate cancer was good, with a more significant number of them aware that the disease is curable. This notwithstanding, specific knowledge on the screening guidelines was low. The personal characteristics were identified as not significantly associated with knowledge level on prostate cancer screening uptake among men in the Lower Manya Krobo Municipality.

There was a general positive perception of the significance of prostate cancer screening in plummeting the disease among men in LMKM with 55.1% of them positively perceiving prostate cancer as not being a sexually transmitted infection and 90.9% not considering the disease as a taboo.

6.3 Recommendations

Based on the findings andconclusions, the following were recommended;

- It is recommended for the Lower Manya Krobo Municipal Health Directorate in collaboration with the Atua Government Hospital to design a practical and sustainable program through its Public Health and Health Promotion Departments to target and educate men, aged 40 years and above on the importance of screening early for prostate cancer .

- It is recommended for the Ministry of Health to liaise with the National Health Insurance Scheme to roll out a free prostate cancer screening and prevention program in the District Hospital and other health facilities in the Lower Manya Krobo Municipality to improve access and uptake for men. They should also enlist PSA test onto the scheme.

- It is recommended for National Commission on Civic Education (NCCE) to help extend the 'right' education on prostate cancer screening and prevention to men in the Lower Manya Krobo Municipality to improve early uptake and to seek advice from only qualified personnel in hospitals and clinics to clear every doubt.

- Given the relevance of the topic in promoting quality of life among men, future research work should consider exploring the use of a qualitative approach to help unearth the factors contributing to low uptake of screening for prostate cancer in larger populations.

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Appendix A:

INFORMED CONSENT FORM

I am a graduate student at Ensign College of Public Health, Kpong. I am conducting a research on the KNOWLEDGE AND PRACTICES OF PROSTSTE CANCER SCREENING as an academic work which could be used for a database in policy formulation. I would be grateful if you could spare some time to be part of this study. You are hereby assured of anonymity and that any information provided will be treated with the utmost confidentiality. Participation in this study is voluntary and if at any point you feel reluctant to participate you have the right to withdraw without any offence or hindrance.

Respondent's Agreement

I have been given the opportunity to ask any questions about the research and answers given adequately to my satisfaction. I do hereby consent to be a participant in the study.

Yes [ ] No [ ]

Questionnaire Number …… Date :……

Name of interviewer…….. Signature of interviewer……

Appendix B:

SAMPLE QUESTIONNAIRE

KNOWLEDGE AND PRACTICES OF PROSTATE CANCER SCREENING AMONG MEN IN THE LOWER MANYA KROBO MUNICIPALITY IN THE EASTERN REGION OF GHANA

Respondent's ID #: ……. Date:/……. /……...

Name of interviewer…….…….…….

Dear Sir,

My name is ……I am a graduate student at Ensign College of Public Health, Kpong. I am conducting research on the knowledge and practices of prostate cancer among men in this municipality. This is an academic work that could be used for a database in policy formulation. I would be grateful if you could spare some time to answer this questionnaire. You are hereby assured of anonymity and that any information provided will be treated with the utmost confidentiality. If at any point you feel reluctant to participate, you have the right to drop out without any offence or hindrance. Thank you.

SECTION A: Socio-demographic characteristics of respondents

Qns	Question	Response	Code
1	How old are you, please?		
2	What is marital status?	Single [ ] Married [ ] Divorced [ ]	1 2 3
3	What is your highest level of education?	None [ ] JHS/ Middle [ ] SHS/Voc./ Tech. [ ] Tertiary [ ]	1 2 3 4
4	What is your religious affiliation?	Christian [ ] Muslim [ ] Traditionalist [ ]	1 2 3
5	What is your ethnicity?	Krobo [ ] Ga [ ] Ewe [ ]	1 2 3

		Akan [ ] Others……..	4
6	What is your occupation?		
7	How many biological children do you have?	None [ ] 1-3 [ ] 4-6 [ ] 7 + [ ]	1 2 3 4
8	How long have you been in this job?		
9	Do you have a Family History of PC?	Yes [ ] No [ ]	1 0
10	Have you been enrolled in NHIS?	Yes [ ] No [ ]	1 0

SECTION B: Practices of prostate cancer screening uptake

Qns	Question	Response	Code
1	Have you ever heard about PC?	Yes [ ] No [ ]	**1** **0**
2	If yes, what was your source of Information?	TV/ Radio [ ] Health worker [ ] Family/Friends [ ]	**1** **2** **3**
3	Have you ever been screened for prostate cancer?	Yes [ ] No [ ]	1 0
4	If yes, which of them? If No move to Q3	Prostate-Specific Antigen (PSA) [ ] Digital Rectal Examination (DRE) [ ] Biopsy [ ]	1 2 3
5	Is it important to screen for prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
6	Prostate cancer screening would be painful	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
7	Going through prostate cancer screening is embarrassing	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
8	Prostate cancer screening will aggravate the disease	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
9	I believe that going through prostate cancer screening will help me to be healthy	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
10	Prostate cancer screening is beneficial and will settle any ambiguities about whether I have the disease or not	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
11	Regular examination for prostate cancer	Agree [ ]	1

	is expensive	Don't know [ ] Don't agree [ ]	0 0

SECTION C Knowledge of Prostate cancer

Qns	Question	Response	Code
1	Do you know someone suffering from prostate cancer?	Yes [ ] No [ ]	1 0
2	Do you know someone who has died from prostate cancer?	Yes [ ] No [ ]	**1** **0**
3	Prostate cancer is a common disease	Yes [ ] No [ ]	**1** **0**
4	Is prostate cancer curable?	Yes [ ] No [ ]	**1** **0**
5	Prostate cancer has no known cause?	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
6	Prostate cancer may not present with signs and symptoms at the early stages?	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
7	Difficulty in urinating may be a warning sign of prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
8	Weakness and numbness in the leg and feet may be a warning sign of prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
9	Passing bloody urine may be a warning sign of prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
10	Prostate cancer may present with pain in the waist and back	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
11	Men aged 40 and below are not at risk of developing prostate cancer than older men	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
12	Men who have a previous history of prostate cancer in the family are at high risk	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
9	Prostate specific antigen (PSA) and Digital rectal examination (DRE) are screening methods for prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
10	Prostate cancer can be treated through surgery	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0

SECTION D: Practices of prostate cancer

Qns	Question	Response	Code
1	Prostate cancer cannot be sexually transmitted	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
2	Prostate cancer can lead to death	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
3	One can live a normal life after treatment of prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
4	I believe I am at high risk of getting prostate cancer	Agree [ ] Don't know [} Don't agree [ ]	1 0 0
5	I believe that if you are diagnosed with prostate cancer, then you are doomed to die.	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
6	Prostate cancer is as a result of a curse and Ait's seen as a taboo?	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
7	Prostate cancer has no cure even when it is detected early	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
8	One is more likely to get prostate cancer when one passes the age of 50	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0
9	Prostate cancer treatment is painful, and it deters affected persons from seeking timely treatment	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
10	Regular check-up for prostate cancer indicates that one has prostate cancer	Agree [ ] Don't know [ ] Don't agree [ ]	0 0 1
11	Prostate cancer can be treated when found early	Agree [ ] Don't know [ ] Don't agree [ ]	1 0 0

Thank You!