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KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT PROSTATE CANCER AMONG MEN IN THE AWUTU SENYA EAST MUNICIPALITY

BY:

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DECLARATION

I, the undersigned, affirm that with the exception of referenced works of other people, which have been cited and duly acknowledged, this work is an output of my own initiative. This dissertation has neither in whole nor in part been presented for an award or a degree elsewhere.

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(Student)

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Dr. Kwabena Opoku-Mensah Date

(Supervisor)

DEDICATION

I dedicate this work to all those on whose shoulders I stood to make it this far in my education. Special dedication to my father Mr. Emmanuel Seth Korley who has always motivated and supported me in my education.

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ABSTRACT

Background: Prostate cancer is the number one cancer afflicting men in Africa and a leading cancer killer among Ghanaian men. Although there is scarcity of information on the disease in African men, higher awareness with related low levels on knowledge, attitudes and perception of self-risk to the disease is established among urban men in West Africa.

Objective: This study seeks to assess the knowledge, attitudes and practices of men in the Awutu-Senya East Municipality on prostate cancer

Methods: A community-based cross-sectional study was designed among men aged 18 years or above in the Awutu Senya district of the Central region. A pre-tested questionnaire was used to collect the data. Summary statistics were presented using tables and charts. Chi square test was used to determine the statistical association between dependent and independent variables of interest. Logistic regression was used to determine the odds ratios of factors that influence level of knowledge, attitude and practices of prostate cancer.

Results: The proportion of respondents with high knowledge on prostate cancer was 63.5%. Those with a positive attitude toward prostate cancer formed 47.7% of respondents while those with good practices related to prostate cancer formed 57.8% of respondents. The factors associated with positive attitude toward prostate cancer were unemployment relative to being self-employed (AOR=4.15; 95% CI: 1.31, 13.11, p= 0.015), average income of GHS 501-1,000 (AOR= 3.83; 95% CI: 1.23, 11.88, p= 0.02), GHS 1,001-2,000 (AOR= 4.14; 95% CI: 1.24, 13.80, p=0.021) and above GHS 2,000

(AOR= 6.12, 95% CI: 1.66, 22.57, p= 0.007) relative to earning GHS or less; drinking alcohol (AOR= 2.13; 95% CI: 1.13, 4.02, p= 0.019); and having high level of knowledge (AOR= 3.01; 95% CI: 1.51, 5.97, p= 0.002).

Conclusion: Overall knowledge on PC relatively appreciable but knowledge on symptoms and risk were low. Factors that influenced level on prostate cancer knowledge were civil/public servants, cohabiting with a partner, and attitude toward prostate cancer. Poor perception of risk is one main negative attitude towards prostate cancer. Factors associated with attitude towards prostate cancer were unemployment, average monthly income, alcohol drinking status and level of knowledge. Low uptake of screening, and poor dietary adjustments were the main poor practices identified. The factor significantly associated with practices related to prostate cancer was smoking status.

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LIST OF ABBREVIATIONS

ACS	-	American Cancer Society
ASEMA	-	Awutu Senya East Municipal Assembly
DALYs	-	Disability-Adjusted Life Years
DRE	-	Digital Rectal Examination
GHS	-	Ghana Heath Service
HBM	-	Health Belief Model
HIV&AIDS	-	Human Immunodeficiency Virus/Acquired immunodeficiency syndrome
LI	-	Legislative Instrument
MOH	-	Ministry of Health
PC	-	Prostate Cancer
PHS	-	Population and Housing Census
PSA	-	Prostate Specific Antigen
TB	-	Tuberculosis
WHO	-	World Health Organization

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DEFINITION OF TERMS

Knowledge on Prostate Cancer – the familiarity and awareness of the prostate cancer risks, symptoms and screening.

Attitude towards Prostate Cancer – the predisposed state of mind as relates to prostate cancer measured by an individual's evaluation of their reaction to the disease, risks and screening.

Prostate Cancer Practices – habits related to prostate cancer prevention or screening reflected in the willingness or otherwise to screen or make lifestyle changes.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Cancer is the second leading cause of death globally. In 2015, the prevalence of cancer was 17.5 million worldwide and 8.7 million cancer-related mortalities. Between 2005 and 2015, cancer cases increased by 33%, with population aging contributing 16%, population growth 13%, and changes in age-specific rates contributing 4%. For men, the most common cancer globally was prostate cancer (1.6million cases) (Fitzmaurice et al., 2017). Prostate cancer (PC) occurs when abnormal cells develop and multiply uncontrollably in the prostate. This uncontrolled growth sometimes spread outside the prostate into nearby or distant parts of the body (Moul, 2004).

Prostate cancer is generally a slow growing disease and the majority of men with low grade prostate cancer live for many years without symptoms and without it spreading and becoming life-threatening (CCA, 2016). The American cancer society in 2004 established that all men are at risk of developing prostate cancer from age 50 (Moul, 2004). However, in recent times, patients present with prostate cancer at increasingly younger ages and with earlier stage (Lavery, Kirby, & Chowdhury, 2016). There is some evidence that prostate cancer may develop at earlier ages in African Americans than in the general population. Well-known risk factors associated with prostate cancer are age, race/ethnicity, geography, family history, gene changes, vasectomy, diet, sexually transmitted infections, inflammation of prostate etc (ACS, 2016).

Deaths caused by prostate cancers are undoubtedly alarming in both developed and developing countries (Calys-Tagoe et al., 2014). As part of the epidemiological transition, cancer incidence is expected to increase in the future, further straining limited health care resources (Fitzmaurice et al., 2017). It is however estimated that by 2020, out of the cancer cases reported globally 70% will come from developing countries (WHO, 2015).

Although the incidence of prostate cancer is higher in the developed countries, highest estimated deaths are recorded in medium and low income areas in South America, the Caribbean and Sub-Saharan Africa (Siegel, Naishadham, & Jemal, 2012). These variations can be attributed to early screening and detection that is being enforced in developed countries (Zhang, Bangma, & Roobol, 2017).

Early detection of prostate cancer has been identified to lead to better treatment outcomes and hence reduce prostate cancer-related deaths (Barry & Simmons, 2017). To this end, certain barriers exist to the early detection and screening. Among the barriers are low levels of knowledge and awareness, negative attitude towards screening, cost involved in screening, misconceptions about prostate cancer and the embarrassment that comes with being aware of the disease etc (Loud & Murphy, 2017).

According to Loud and Murphy (2017), the goal of cancer screening and early detection is to cure cancer by detecting the malignancy, or its precursor lesion, at an early stage, before the onset of symptoms, when treatment of cancer is most effective. Prostate cancer awareness in Africa is undoubtedly inadequate. The general perception of prostate

cancer, screening and management of cancers is often influenced by socio-economic and psychological factors (Kolahdooz et al., 2014).

Prostate Cancer, together with other forms of chronic diseases affect people in diverse ways. Depending on their perception and attitude towards prevention and management of the disease, better treatment outcomes are obtained (Kolahdooz et al., 2014). In this regard, prostate cancer is curable if detected and treated early. Although, there is a debate concerning management policy for early prostate cancer and routine population screening, it still stands out to be a desirable goal.

1.2 Problem Statement

Overall, cancer caused 208.3 million disability-adjusted life years (DALYs) worldwide in 2015 for both sexes combined. Between 2005 and 2015, age-standardized incidence rates for all cancers combined increased in 174 of 195 countries or territories (Fitzmaurice et al., 2017). In Sub-Saharan Africa, prostate cancer reports have been hospital-based and as such very few studies (Yamoah et al., 2013), have been conducted on indigenous populations. Ghanaian men, often present themselves for check up at the latter stages of the disease (Yamoah et al., 2013).

However, there are contradictory outcomes on the importance of prompt PC screening to decrease mortality. An investigation undertaken in Europe detailed a 20% decrease in PC-related mortality. However, a US study was unsuccessful and neglected to demonstrate any diminish in PC-related deaths (Schroder et al. 2009; Andriole et al.,

2009). Nevertheless, the advantages of early screening to ascertain cancer status to start early treatment and decrease PC-related mortalities cannot be overemphasized. In spite of the high deaths of PC in Ghana, around 75% of PC cases are reported late at hospitals in advanced stages (Ministry of health (MOH), 2011; Yamoah et al., 2013; Chu et al., 2011). Notwithstanding, the increasing incidences and mortality resulting from prostate cancer in Ghana (MOH, 2011), there have been neither specific policies nor effective strategies for controlling the disease. One of the most effective intervention tools for prostate cancer is screening and early diagnosis (Magoha & Ngumi, 2000). However, the poor attitude and awareness on the disease compounds the problem. It is further argued that poor attitude and knowledge about PC and the availability of alternative therapies are the reasons for late reporting for PC screening and treatment (Mbonu, 2014). However, the fact still remains that there is very little research that examines knowledge, attittudes and practices towards prostate cancer screening in Ghana (Yeboah-Asiamah et al., 2017).

This study therefore seeks to assess the knowledge, attitudes and practices among men with regards to prostate cancer in the Awutu Senya East Municipality.

1.3 Research Questions

1. What is the level of knowledge of men in Awutu-Senya East Municipality on prostate cancer?

2. What are the attitudes and practices of men in Awutu Senya East Municipality regarding prostate cancer?

3. What factors are associated with the level of knowledge, attitudes and practices regarding prostate cancer among men in the Awutu-Senya East Municipality?

1.4 Objectives

The following are the objectives for this proposed study

The general objective is to assess the knowledge, attitudes and practices of men in the Awutu-Senya East Municipality on prostate cancer.

1.4.1 Specific Objectives

The specific objectives of the study have been outlined as:

1. To determine the level of knowledge of men on prostate cancer
2. To determine the attitudes and practices with prostate cancer among men.
3. To determine the factors associated with the level of knowledge, attitudes and practices regarding prostate cancer among men.

1.5 Justification of the Study

The occurrence of prostate cancer, if not taken into serious consideration may hit an epidemic status. This poses a huge threat to the health status of both developed and developing countries (Fitzmaurice et al., 2017). It has been established that prostate cancer is curable if detected and treated early (Calys-Tagoe et al., 2014). Nonetheless, the prevalence of PC is rising, as is the morbidity and mortality associated with it. However, inadequate knowledge on the disease and the low uptake of routine screening among men most at risk of developing prostate cancer compound the problem. In addition, little is known in Awutu Senya East Municipality about the factors predisposing men to increased risk of prostate cancer as well as hindering awareness and uptake of screening and early diagnosis. Increased awareness has been identified to demystify poor perceptions and negative attitudes towards the early detection and treatment of prostate

cancer (Kolahdooz et al., 2014). Increased awareness in breast cancer has contributed to early detection and treatment of breast cancer. Hence, a decline in breast cancer-related mortalities and its burden (Carles et al., 2011). Therefore, an increase in awareness among men at risk of prostate cancer may result in early case detection and reduction in mortalities and disease burden. The study will also provide substantial data that will help policy makers, public health experts and health educators in instituting comprehensive policies and implement programs that will increase knowledge, improve attitudes and practices, thereby warding off all misconceptions and barriers to seeking early treatment.

1.6 Theoretical Framework for the Study

One of the recommended theoretical methods used in understanding health-related behaviour and adherence to health intervention is the Health Belief Model (HBM). To predict health behaviour and promote the uptake of health services in cognitive behaviors, HBM is the most widely used model. Hochbaum, Rosenstock and Kegels in 1950 developed the HBM in rectify the failure of the free tuberculosis (TB) health screening programme (Glanz, Rimer, Viswanath, 2008). The HBM has been adapted to explore a variety of long- and short-term health behaviours, including sexual risk behaviours and the transmission of HIV/AIDS. According to the HBM, "an individual will take preventive action if they believe that action will prevent illness and if they have the desire to avoid that illness" (Koenker, Loll, Rweyemamu, & Ali, 2013a).

The model has six elements. These comprise perceived susceptibility of the individual to the condition; perceived severity of the condition as having serious medical and social consequences; perceived benefits of taking the health action in reducing the disease threat as well as other additional benefits; perceived barriers to taking the health action, which should not overweigh the benefits. These four perceptions are elements that determine the readiness to take the action; Cues to action such as signs and symptoms of prostate cancer which trigger this readiness and lead to specific action (e.g., seeking early treatment) and self-efficacy, which is the conviction that one can successfully execute the health behavior (Glanz, Rimer, Viswanath, 2008).

The theory has proven to be useful in interpreting knowledge and awareness on prostate cancer in previous studies (Beer et al., 2012; Koenker, Loll, Rweyemamu, & Ali, 2013b). In this study, the HBM framework is used to explore the knowledge, awareness, and

treatment practices of prostate cancer among men in Awutu Senya East Municipality. The conceptual model below (Figure 1.1) is an adaptation of the HBM applied to the knowledge and awareness of men on prostate cancer. The HBM postulates that "for people to change their behaviour, they must feel threatened by their current situation (perceived severity and susceptibility), believe that a change in behaviour will have an overall favorable outcome despite the costs (perceived benefits), and believe that they are competent (self-efficacy) to overcome any perceived barriers to change and take action. According to HBM, behaviour change is likely in the context of cues to action, or situations that trigger behaviour" (Glanz, Rimer, Viswanath, 2008). In this model, potential modifying factors are included as they are likely to affect the individual-level beliefs of perceived threat of prostate cancer and self-efficacy to care for prostate cancer. These four components can affect the likelihood that prostate cancer awareness will increase to alter the attitude of people (men) to promote early screening

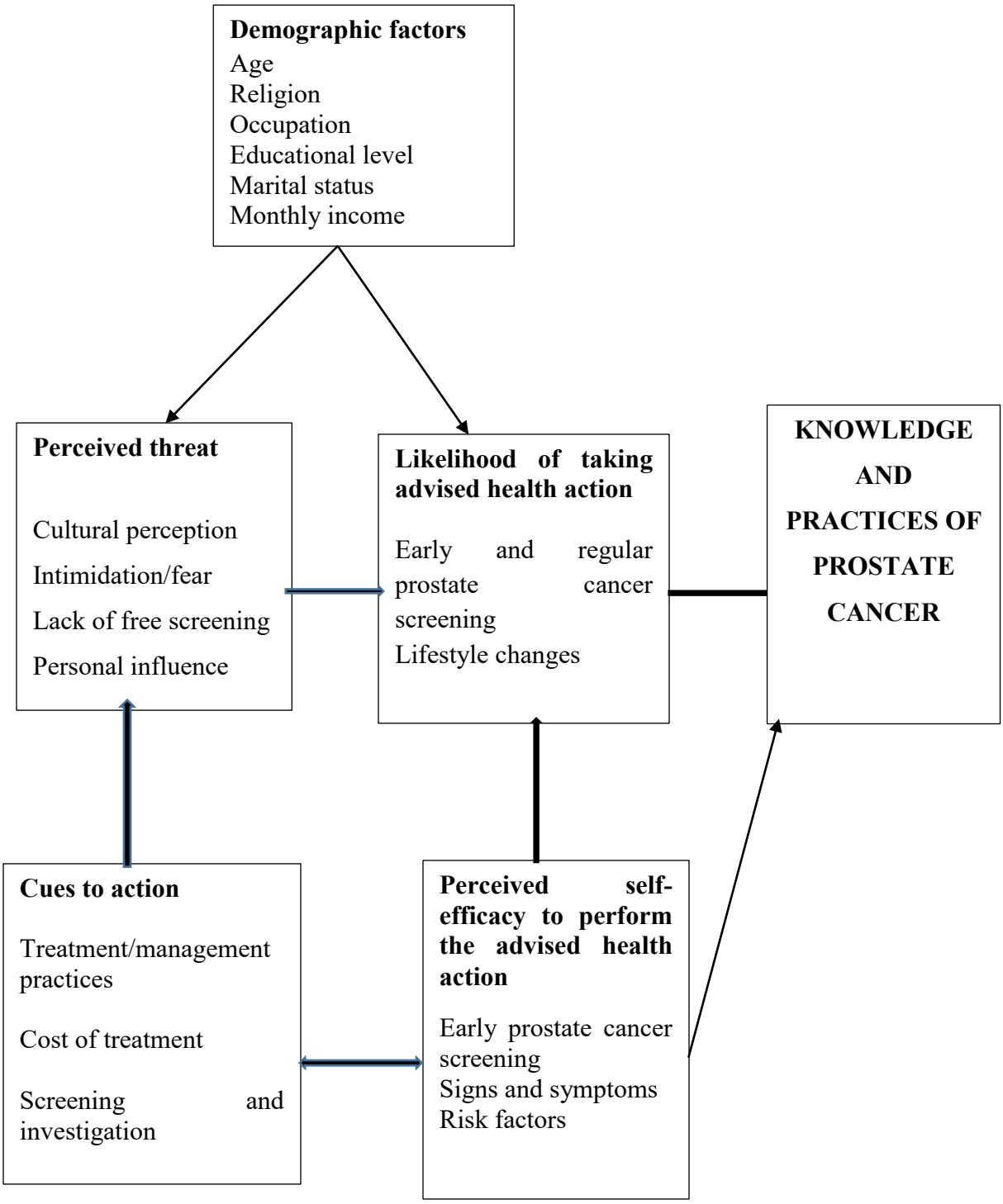

Figure 1: Conceptual Framework for Knowledge and awareness. Source: Adaption of the health belief model (1950).

CHAPTER TWO

LITERATURE REVIEW

2.1 Epidemiology and Clinical features of Prostate Cancer

Prostate cancer is the most common malignancy diagnosed in men (Haas, Delongchamps, Brawley, Wang, & de la Roza, 2008). The prostate is a gland peculiar to only men and it is located anterior to the rectum and beneath the human bladder. It's growth is largely dependent on the presence of male hormones (Lavery et al., 2016). It has been discovered that there are other uncommon forms of cancer of the prostate gland which include sarcomas, small cell carcinomas, and transitional cell carcinoma (CCA, 2016).

Prostate cancer in the early stages is asymptomatic. However, some symptoms recognized at the highly developed phase of the disease include; a slow or weak urinary stream, frequent urination especially at night, blood in the urine, erection dysfunction, pain in the hips, back, ribs, and other areas as it extends to the bones, weakness or lack of sensation in the legs, feet, and occasional loss of bladder or bowel control due to the pushing on the spinal cord by the cancer (ACS, 2014).

2.2 Epidemiology of Prostate Cancer

The incidence of prostate cancer differs significantly between geographical areas and with ethnicity (Siegel et al., 2012). Men of Africa origin are disproportionately affected by prostate cancer (McGinley, Tay, & Moul, 2016). Despite this seemingly disproportionate burden and the prevailing challenges, it is still quite difficult to precisely

describe the burden of prostate cancers in Africa due to weak health management information systems (Adeloye et al., 2016).

Worldwide, prostate cancer is rated the second most common cancer and sixth leading cause of cancer deaths among men, with over 1.1 million cases and 300,000 deaths estimated in 2012 (Adeloye et al., 2016).

In Africa, prostate cancer cases are reported mostly as cases from hospitals due to lack of population-based cancer reporting systems However, over the past decades, a number of reporting systems and cancer registers have been opened, but data on Prostate cancer are obtained more often than not from West-Africa (Fitzmaurice et al., 2017). In the developed countries, prostate cancer is recognized as one of the most common cancer and the leading cause of death (Haas et al., 2008). This however, is a major issue of public health concern in the developed countries. It has been estimated that about 8.8 million people died out of prostate cancer in 2015. This is nearly 1 in 6 of all global deaths. A total annual economic cost of 1.16 trillion dollars. Meanwhile about 30-50% of cancers could be prevented (WHO, 2015).

Evidence suggests that most new cases of cancers are now found in Africa, increasing from 15% in 1970, to 56% in 2008, and projected to reach about 70% by 2030. This significant rise can be attributed to the rapid population growth, increasing life expectancy, urbanization with progressively westernized lifestyles, and high prevalence of HIV/AIDS in this region (Adeloye et al., 2016).

Bowa (2010) discovered that, prostate cancer is occurring among young men in Africa than in developed countries and this makes prostate cancer a major issue of public health concern.

2.3 Risk factors of Prostate Cancer

The exact cause of prostate cancers like other cancers is not known. But certain risk factors are recognized to be linked to the development of prostate cancer. The most common risk factors of prostate cancers are ageing, hereditary factors (family history) and race or ethnicity (Lavery et al., 2016). Other predisposing factors include, lifestyle factors such as smoking, diet, alcohol and stress, nationality and workplace exposure (environmental influence) (Lavery et al., 2016). Risk is further increased by early age at onset in relatives and multiple relatives with the disease. More recently, segregation studies have identified familial clustering patterns of prostate cancer that are consistent with the presence of high penetrance genetic mutations that confer a Mendelian pattern of inheritance (Gann, 2002).

Prostate cancer is commonly diagnosed in men over the age of 65. It is also estimated that 6 out of 10 cases of prostate cancer are reported among that age group (Lavery et al., 2016). Men aged 40 years and below are less frequently diagnosed with prostate cancer, but the probability of developing the disease is higher after age 50 (Barry & Simmons, 2017). African-American men and Caribbean men of African origin are commonly diagnosed of prostate cancer than in men of other races. Prostate cancer incidence in African-Americans is one of the highest in the world (Lavery et al., 2016),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 as compared to their white counterparts. 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. However, prostate cancer incidence is less common in men of Asian, Hispanic or Latino lineage (Delongchamps, Singh, & Haas, 2007).

Prostate cancer risk is suggested to be influenced by diet (Oladimeji, Bidemi, Olufisayo, & Sola, 2010) even though the role of diet in PC is not understood (Lavery et al., 2016). A higher prostate cancer risk is identified to be associated particularly with the higher intake of fat, red meat, and dairy products (Lavery et al., 2016). PC risk with high level of calcium consumption is also identified. However, vitamin D, soy and omega-6 fatty acids are said to be protective of prostate cancer (Zhang et al., 2017).

2.4 Health and cultural beliefs about Prostate cancer

Odedina et al. (2011) studied the cultural and health beliefs of black men aged 40 to 70 years in Florida, USA from April 2008 to October 2009. The health beliefs assessed were perceived susceptibility, perceived severity, attitude outcomes beliefs and perceived behavioral control while the cultural beliefs included cancer fatalism, temporal orientation, religiosity/spiritualism, and acculturation. Most of the respondents were born in the US, married, between ages 40 and 49, and had at least high school diplomas. The scales used to measure the factors were found to be highly reliable. Respondents' attitude was generally favourable. They expressed high readiness to get screened through the various tests and were exercising and eating right. Behavioral control was moderate as

most were reluctant to screen annually. The scores on perceived susceptibility and severity indicated moderately favorable beliefs. They generally had low level of acculturation, high skills for coping based on religion and high perspective of future time. The factors that were associated with attitude were ethnicity, age, education, income and health insurance. Men aged 60 to 69 years had a more favorable attitude compared to those between 40 and 49 years. Respondents who had completed college had more favorable attitude than who had completed or could not complete high school. The findings of this study, however, cannot be generalized as a convenient sampling technique was used. Also, there was the likelihood of information bias as the questionnaire responses were self-reported.

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 the uptake of prostate screening and positive health seeking behavior (Lloyd et al., 2013). It has been established that extreme levels of prostate cancer knowledge can affect health seeking behaviour (Oladimeji et al., 2010). High levels of knowledge on prostate cancer has been reported by previous studies (Adeloye et al., 2016). In a study conducted by Oladimeji et al. (2010), it was discovered that majority of public servants could identify at least one symptom of prostate cancer correctly with the most common symptom identified as difficulty in urinating.

Zhang et al., (2017) also discovered that high level of knowledge is mostly found among men at high risk, especially those with family history of prostate cancer. Older men were

also found to be more knowledgeable that younger men. High levels of knowledge were also found to be associated with high levels of education (Oladimeji et al., 2010).

Other previous studies also reported low level of knowledge about prostate cancer in some developed countries (Zhang et al., 2017). Most men in these developed countries lacked adequate knowledge about risk factors, available screening tests, early screening and detection (Bray, Jemal, Grey, Ferlay, & Forman, 2012).

A cross-sectional study was conducted by (Oranusi, Mbieri, Oranusi, & Nwofor, 2012) to assess the knowledge and awareness of prostate cancer and prostate specific antigen among government workers in the Southeastern Nigerian state of Anambra. The study assessed 7 areas of knowledge on prostate cancer and screening. The average age of respondents was 45.1 years and the modal age category was 40 – 49 year age class. The researchers found that 45.3% of respondents identified difficulty in passing urine as the commonest symptom and 23.9% were unable to identify any symptoms at all. It was determined that the factors associated with prostate cancer were age, presence of testes, diet and previous family history. Only 6.4% had been screen for prostate cancer although 90% were willing to take the screening test.

Yeboah-Asiamah, Yirenya-Tawiah, Baafi, & Ackumey, 2017) examined the prostate cancer knowledge and perceptions of male teachers in Sunyani. The study design was cross-sectional. The sample size was 160 and the age range of respondents was 45 – 60 years. The average age of respondents was 49.52 (SD=3.95). As to the causes of prostate cancer, 58.8% did not think it is sexually transmitted and 40.6% did not think it could be

caused by radiations from cell phones. The proportion that were of the opinion that screening was advantageous was 95% with 72% of respondents disagreeing that the process was embarrassing. However, 90% had never been screened. Although 68.1% of respondents were in the high risk age category only 34.4% of respondents thought they were at risk. The proportion of respondents who perceived age 50 as the highest risk age was 46.2%. Perceptions of prostate cancer was not significantly associated with socio-demographic variables. Knowledge and perceptions of prostate cancer were associated at $p<0.001$ as was knowledge and attitudes towards screening. The authors recommended educational campaigns to improve knowledge, perceptions and attitudes. The impact will be improved uptake of prostate cancer screening and care.

A descriptive cross-sectional study was conducted by (Nakandi et al., 2013) in Uganda to assess the knowledge, attitudes and practices of adult males. The researchers used a mixed-methods approach to address the research questions. The respondents were 545 in all with 63.1% being Christians, 31.7% being Muslims, and 5.2% belonging to African traditional religion or other religious denominations. With regards to their marital status, 57.1% were single, 37.6% were married and the 5.3% were either divorced or unspecified. Majority of them were within the ages of 18 and 28 (59.4%) and were undergraduates (41.7%). Regarding awareness, 54.1% had never heard of prostate cancer and a couple of people thought prostate cancer was gonorrhea. Those who were aware of prostate cancer either heard about it through the media (50.1%), friends and relatives (23.3%), health worker (12.5%), all the mentioned sources (11%) or other sources (3.1%). Of all respondents, 37.4% had no knowledge of the age at which the risk is highest, 21.1% were of the opinion it often affects men above age 50, 14.5% said males

aged between 20 and 30 were the highest risk group, 13.4% said males between ages 30 and 40 were the highest at risk and 13.6% said males between ages 40 and 50 were the highest at risk. Approximately 50% of those who were aware of prostate cancer appropriately identified any the risk factors. A comparable proportion did not know any of its symptoms. However, 12.5% identified pain on urination as the most common symptom. Study participants had various misconceptions about prostate cancer, with some considering it as a contagious disease. Knowledge of screening was generally low. The association between knowledge of causes and symptoms of prostate cancer and level of education as well as age category was statistically significant at $p<0.05$.

In Kenya, a household-based cross-sectional study was conducted to assess the knowledge and awareness, and perception of susceptibility to prostate cancer among adult males (Wanyagah, 2013).

(Otoo (2010) assessed the awareness of males in the Ghana Armed Forces in Accra. A cross-sectional descriptive design was used for the assessment.

A qualitative study was conducted in England to investigate the attitudes and knowledge of men highly predisposed to prostate cancer about the role of diet and their penchant for important information (Horwood et al., 2014). The study was nested in a trial where participants were randomized to both lycopene or placebo and green tea. Participants were all Caucasian, married and between the ages 52 and 72 years. The main themes identified from the analysis were knowledge of determinants of prostate cancer, attitudes towards green tea and lycopene for prevention of prostate cancer and preferences for information about diets.

The findings of the study were that the participants identified the causes of prostate cancer to be numerous and included diet such as red meat, age, environmental factors such as pollution and pesticides and genetic factors. More specifically, a number of thought that male is genetically predisposition and that a combination of external factors precipitates disease on set. Smoking and exercise were also identified as relevant factors. Most men thought that lifestyle modifications could reduce the risk of developing the disease or improve how the body responds to it. Some participants were not sure they had adequate knowledge about prostate cancer prevention.

2.6 Attitude towards early screening and detection

Cancer screening can reduce the consequences of developing cancer as screening can facilitate early detection of developing cancer tissues leading to improved treatment results (Zhang et al., 2017).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. Negative attitudes and poor participation in cancer-screening could lead to the diagnosis of cancer in more advanced stages, and results in undesirable treatment outcomes (Loud & Murphy, 2017). Loud and Murphy (2017) further explained the goal of cancer screening and early detection as to cure cancer by detecting the malignancy, or its precursor lesion, at an early stage, before the onset of symptoms, when treatment of cancer is most effective.

Early detection and treatment of prostate cancer is said to have a 94% survival rate better as compared to 30% when diagnosed in the advanced stages. Prostate cancer strategies in Europe and America now include early screening to achieve a better treatment outcome which can be restorative (Zhang et al., 2017). 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 screening every year. It further states that the advantages and disadvantages should be explained to patients before screening (ACS, 2016).

There is some form of consistency in the guidelines for screening services in the Regional Hospitals in Ghana (MOH/GHS/2011). However, there seems to be some barriers that create limitations to decision making for testing for prostate cancer. Facility-related barriers that seem to exist include patient co-morbidity, lack of education, physician inability to remember, and patient's inability to visit the clinic (Chan et al., 2011) and attitudes (positive or negative) toward early screening for PC. Different attitudes towards early detection of PC have been identified across Europe (Zhang et al., 2017) and across Africa, differences exist in patterns of screening, detection and treatment (Oladimeji et al., 2010). Positive attitudes toward prostate cancer screening have been found to be associated with high level of education, age, income, awareness of the availability of the test, and the occupation of men (Zhang et al., 2017).

According to the study by (Nakandi et al., 2013) 80.9% said that cancer was a major problem in Uganda. The majority of respondents (77%) had never thought of being screened for the disease. There was no significant association between prostate cancer attitudes of respondents and any of the factors. The proportion that agreed that early detection leads to improved outcomes was 71% and most participants thought prostate cancer was incurable. In total 63.5% of participants considered themselves at risk of developing cancer while 21.6% did not know if they were susceptible or not.

The study by Wanyagah (2013) found that 91.4% of respondents were prepared to be screened for prostate cancer while 97.2% were prepared to learn more about the disease.

In the study by Horwood et al. (2014) in England the men interviewed were enthusiastic about green tea being beneficial for prostate cancer prevention. Generally the attitude of men was favorable with regards to preventing prostate cancer by increasing the consumption of either lycopene, green tea or tomatoes. These were considered natural and convenient.

2.7 Sources of information about prostate cancer

According to the Social cognitive theory, there exists some factors that can influence a person's health seeking behaviour. These factors include influences from friends, family and colleagues, and the sources of information (media). These sources of information, just as they disseminate information to improve upon people's knowledge about the disease and health seeking behaviour, also increase risk perceptions (Bandura, 2001).

These sources of information may be important and used in health education, promotion and awareness creation campaigns (Ogunsanya et al., 2017). Several studies have identified the media as a source of information about prostate cancer. Other related sources include brochures, magazines, newspapers, books and medical journals (Olapade-Olaopa et al., 2014).

2.8 Practices for prostate cancer

According to the study by (2010) 95% of military men and officers in Ghana had never been screened for prostate cancer and the other 5% indicated that they had taken the screening test. Asked if they will accept to be screened if they had the chance to, all participants responded in the affirmative. While 46% agreed that prostate cancer was curable if diagnosed early, 51% did not know if prostate cancer was curable under any circumstance and 3% disagreed that it was curable if detected early. It must however be noted that the study was conducted among military men and as such findings cannot be generalized to all men. Also, the use of the convenience sampling technique must be considered in the interpretation of the results.

The study done in Uganda by (Nakandi et al., 2013) found that only 12.3% of respondents had ever been advised by a medical doctor to get screened. Also, only 2.8% had undertaken the prostate cancer screening at least once in their lifetime; majority (89.9%) had never been screened and 7.3% were not sure if they had ever been screened or not. Of the respondents who had never been screened, 32% were not aware of prostate cancer, 25% did not think they were at risk and 17% did not know where to the screening was done. Regarding treatment of Prostate Cancer, it depends upon the stage and grade of the cancer, the age and general health of the patient, and the treatment preference of the patient. Each treatment option has effects that can impact the patient's quality of life and sometimes treatment options (palliative and alternative medicine) are used in combination (Calabrese & Mueller, 2006). The treatment/management options available as grouped into and discussed below:

2.9 Palliative treatment:

This is used for advanced stage prostate cancer with aim of extending life and relieving symptoms such as pain management (Life Nurses, 2014). Abiraterone is an example of drug used at this stage which brings about massive reduction in the level of prostate specific antigen (PSA) (Life Nurses, 2014). Chemotherapy such as docetaxel may also be administered at this stage in combination with prednisolone in other to prolong the life of patient (Tannock, et.al, 2004). Skeletal complications such as fractures are been treated with Bisphonates group of drugs e.g. Zoledronic acid. Radiation therapy in patients with hormone 22nalysed22y metastatic prostate cancer has also been proven effective (Life Nurses, 2014). Alpharadin which is a new alpha emitting drug has been proven to prolong patient survival times, improve quality of life and reduce pain (Life Nurses, 2014). Opioid pain relievers such as morphine and oxycodone are used to treat pain due to metastatic disease (Life Nurses, 2014).

2.10 Complementary and alternative medicine (CAM) for prostate cancer:

According to the Nigerian National health statistics report, (2008), prostate cancer surgery, chemotherapy and radiation often pose negative effect on the musculoskeletal system causing pain and stiffness in joints and muscles, therefore complementary approach is used to treat these complications. Examples of complementary management are massage, reflexology, and chiropratic care in order to relief discomfort, reduce stress, and alleviate certain side effects of standard medical care including nausea and vomiting (NHS, 2008). Alternative therapies are used instead of medical treatment and may be offered as a cure for prostate cancer but have not been proven safe and effective in clinical trials (ACS, 2013).

Complementary and alternative medicine use is common among cancer patients in Nigeria (Ezeome & Anarado 2007). Some of the users do not derive expected benefits, and adverse effects are very few (Ezeome & Anarado 2007). The high cost of western medical treatment and inadequate access to orthodox medicine has led many Nigerian into using alternative and complementary medicine. Adding to the unavailability of medical care, lack of access to health centres, availability and comfort derived from this complementary medicine, orthodox medicine is seen as ineffective among Nigerians especially among those in the communities (Ezeome & Anarado 2007).

Herbs and faith healing/prayer house healing are the most common forms of complementary and alternative medicine used after herbs (Ezeome & Anarado, 2007). Other complementary and alternative medicine used by small number of patients are ginger, garlic, Noni juice, mineral therapy, drinking or application of urine and green tea (Ezeome & Anarado, 2007).

Considering the plethora of advertisement of prostate cancer cure for men in Ghana, it can be inferred that like Nigeria, the use of CAM is common among patients in Ghana. However, the data to elucidate the full extent of this claim is non-existent and this study seeks to ascertain the commonest type of treatment options for PC among men in Senya East Municipality.

2.11 Chapter summary and conclusion

The chapter presents epidemiology and clinical features of prostate cancer. Epidemiology of prostate cancer in Ghana, risk factors of prostate cancer is also presented in this chapter. Knowledge about prostate cancer, attitude towards early screening and detection and sources of information about prostate cancer are presented as well. And finally, the chapter also comprises treatment and/or management practices for prostate cancer. There are no published data to elucidate the prevailing knowledge, awareness and practices regarding prostate cancer among men in Awutu Senya East Municipality. This study is undertaken to assess the current knowledge, awareness and practices about prostate cancer in Awutu Senya East Municipality. Findings from this study will provide a starting point for health authorities to raise awareness amongst men in Awutu Senya East Municipality and Ghana as a whole about prostate cancer.

CHAPTER THREE

METHODS

3.1 Study Area

The study was conducted at the Awutu-Senya East Municipality. The Awutu Senya East Municipal Assembly (ASEMA) is one of the newly created Municipalities in the Central Region. The Municipality was carved out of the former Awutu Senya District in 2012 and established as a Municipality by Legislative Instrument (L.I) 2025 with Kasoa as its capital. The rationale was to facilitate government's decentralization programs and local governance system. According to the 2010 Population and Housing Census (2010 PHC), the total population in the Municipal stood at 108,422. This is about 4.9 percent of the Central Region's population.

Awutu Senya East Municipality is mainly urban. Results of the 2010 Population and Housing Census indicate that the Municipal has few rural settlements The Awutu Senya East Municipality is located in the Eastern part of the Central Region. It shares common boundaries with Ga South Municipal Assembly (in the Greater Accra Region) at the East, Awutu Senya District at the North and Gomoa East District at the West and South respectively. The Municipality covers a total land area of about 108.004 sq. km, about 1.1 percent of the total land area of the Central Region. Kasoa, the Municipal capital, is located at the South-Eastern part, about 31 km from Accra, the national capital. The major settlements of the municipal are Opeikuma, Adam Nana, Kpormertey, Ofaakor, Akweley, Walantu and Zongo (Ghana Statistical Service, 2014).

Source: Ghana Statistical Service, GIS

Figure 2: Map of Awutu Senya East Municipality

3.2 Study Design

An analytical cross-sectional study was conducted using a quantitative approach to assess the knowledge, attitude and practices of men towards prostate cancer in the Awutu-Senya East Municipality.

3.3 Study Population

The study population included all men of reproductive age (18 years and above)

3.4 Sampling Technique

A multi-stage sampling technique was adopted for this study. The 2010 Population and Housing Census stated that the district comprised 7 main communities namely; Opeikuma, Adam Nana, Kpormertey, Ofaakor, Akweley, Walantu and Zongo. Since the communities are somewhat similar in demographic characteristics, simple random sampling was used to select the communities to be used for the study. The seven communities were assigned numbers. The numbers were entered into a computer software to generate 4 random numbers. Based on these 4 randomly selected numbers, the study area communities were selected. Most of the communities in the district are planned. Street names have been assigned to some lane and some houses have been numbered as well. Therefore, a list of all houses within each selected community with their respective house numbers from the district assembly's local government office were used. This served as the sampling frame for each selected community.

After the 4 communities were selected, the total sample size was divided equally among them. A simple random sampling technique will be applied to select male respondents in the selected homes.

Houses in each community were numbered. A code of H1 which maps onto the first original house, up to H(n), with n representing the last house on the list, was used. Following the renumbering of houses in each community, a computer-based number generator software was then be used to randomly select the desired number of houses from each community. With the help of research assistants selected houses were accessed from each community. Where a selected house had only one household with only one male who met the inclusion criteria, that man was interviewed. However, where there were more than one man in the selected household, a simple random sampling technique was used to select that one man provided he meets the inclusion criteria. This was done by indicating on a sheet a mark to select the man for the study. Also, where there were more than one household with men who meet the inclusion criteria, a simple random sampling technique (similar to the one described above) was used to select one household out of the total number of households within the selected house. Finally, if no male adult in the selected house meets the inclusion criteria, the house was replaced with the next house. Generally, the selection of the participants was mostly done during the evening hours of the day, when most community members were back from their respective places of work.

3.5 Sampling Size Determination

A study conducted by Wanyagah (2013) estimated a proportion of 85% exhibiting a positive attitude towards prostate cancer in Kenya with a 5% non-response rate.

Using the Cochran's formula:

$$n = (z^2 pq)/d^2$$

Where

n = sample size

z = confidence interval (standard value of 1.96)

p = estimated proportion of outcome of interest (0.85)

d = maximum error allowed (5%)

Sample size (n) = $(1.96)^2$ *0.85*0.15)/$(0.05)^2$

= 196

Correcting for finite population

$$\text{New Sample size} = \frac{ss}{1 + \frac{ss-1}{Pop}}$$

The population males aged 18 years or above in Awutu Senya was estimated at 22,888 (Ghana Statistical Service, 2014).

n = 196 / (1+ (196 – 1)/22,888)

n= 194.3 ≈ 195

5% non-response rate = **206**

Systematic sampling was used to select households

Simple random sampling was used to select men

3.6 Inclusion Criteria

All men aged 18 years or above.

3.7 Exclusion Criteria

All men aged 18 years or above who were found to be critically ill or had been diagnosed with prostate cancer.

3.8 Study Variables

The variables to be measured in the study have been categorized into dependent and independent variables.

3.9 Dependent variable

- The dependent variable is Level of knowledge (high, Low), Attitude towards prostate cancer (positive, negative) and practices (good, poor) of men in relation to prostate cancer

3.10 Independent variable

The independent variables for the study include

- Socio Demographic variables (age, religion, educational level, marital status, income)
- Level of knowledge (high, Low)
- Attitude towards prostate cancer (positive, negative)
- practices (good, poor) of men in relation to prostate cancer

3.11 Data collection Tools

Data was collected using an interviewer-administered questionnaire method. A structured questionnaire containing questions that relate to socio demographic factors, awareness of

prostate cancer, knowledge on prostate cancer, attitude towards prostate cancer, early screening and treatment.

3.12 Quality control

Three research assistants were engaged in this study. They had a minimum qualification of certificate in Health care. They assisted in administration of the questionnaires. They were trained intensively for two days on the techniques of questionnaire administration for quantitative data collection, on the ethical guidelines and data entry. They were trained on how to translate questionnaire into other local languages for responsents to be better understood before answering questions.

3.13 Pretesting

The developed questionnaire was pre-tested at Lapaz Community. Twenty Questionnaires were pretested. The aim is to test for validity and reliability of the instruments. Identified anomalies in the questionnaire were corrected before the final data collection.

3.14 Ethical Consideration

Approval of the study was sought from Ghana Health Service Ethics Review Committee (GHS-ERC). Permission was obtained from the Municipal Assembly.

Informed consent was obtained from all the participants after the objectives and the methodology of the study had been explained.

3.15 Data Analysis

Pre-coded data was entered and cleaned in Microsoft Excel 2013 and analyzed using STATA version 15.0. Tables and charts were used to present summary statistics. The questionnaire items for measuring knowledge were 10 in total. The responses for positive questions were coded 1 for “agree”, 0 for “don’t know” and 0 for “disagree”; and 0

"agree", 0 "don't know" and 1 "disagree" for the negatively framed ones. All items scores were summed to create a composite score. The median of the composite score on knowledge was 5. To create the two categories of the level of knowledge, all respondents who had a composite score of less than 5 on the knowledge were categorized as having low knowledge and all those who had a score of 5 or above as having high level of knowledge. The attitude items were 9. Each required respondents to rate their level of agreement with statements from 1 "strongly disagree to 5 "strongly agree". Negatively framed questions were reverse coded from 1 "strongly agree" to 5 "strongly disagree". The composite scores on attitude were obtained by summing the scores for all the items and dividing by 9. The median of the composite scores on attitude was 3.7. To dichotomize attitude, all respondents with a composite score of less than 3.7 were categorized as having a negative attitude and all those with a composite score of 3.7 or above as having a positive attitude. For practices, the items were 5 in total. Each required respondents to rate their level of agreement with statements from 1 "strongly disagree to 5 "strongly agree". Negatively framed questions were reverse coded from 1 "strongly agree" to 5 "strongly disagree". The composite scores on practices were obtained by summing the scores for all the items and dividing by 5. Chi- square test was used to assess association between each of the outcome variables and the explanatory variables. For each outcome variable, the other two outcome variables were included in the assessment as explanatory variables. Stepwise logistic Regression using backward elimination was used to estimate the measures of association of factors.

3.16 Conclusion

This chapter provided details of the research approaches used, methods and techniques used for data collection, process of analysis of research findings and as well as ethical issues considered.

CHAPTER FOUR

RESULTS

4.1 Background characteristics

The questionnaire was administered to 206 respondents with a response rate was 100%. Respondents' ages ranged from 18 to 88 years. Table 1 shows the background characteristics of respondents. The proportion of respondents with at least senior high school education was 67.2% (29.4% senior high school; 37.8% tertiary level education). Majority of respondents (52%) had never been married. Of all respondents, 34.8% were self-employed while 18.6% were civil/public servants. Christians were 69.6%, Muslims were 28% and people of other religious affiliations were 2%.

Table 1: Background characteristics of respondents

Characteristic	Median (IQR)	Frequency	Percentage
Age in years	34.5 (28 - 43.5)		
18 - 29		67	32.8
30 - 41		74	36.3
42 - 53		52	25.5
54 and above		11	5.4
Educational Level			
No formal education		17	8.3
Primary school		21	10.3
Junior High School		29	14.2
Senior High School		60	29.4
Tertiary		77	37.8
Marital Status			
Single		106	52
Married		74	36.3
Divorced		4	2
Widowed		9	4.4
Cohabiting		11	5.4
Employment Status			
Civil/public servant		38	18.6
Non-governmental employee		49	24
Self-employed		71	34.8
Unemployed		46	22.6
Religion			
Christian		142	69.6
Muslim		58	28.4
Traditionalist		1	0.5
Others		3	1.5

Table 2 shows that, 81.9% (167 in 204) of respondents were non-smokers and 45.1% (92 in 204) were non-drinkers of alcohol. The proportion of respondents whose average monthly income was GHS 1,000 or less was 61.8% (30.4% earn GHS 500 or less; 31.4% earn GHS 1,000 to GHS 501).

Table 2: Other background characteristics of respondents

	Frequency	Percentage
Average income (n=204)		
GHS500 or less	62	30.4
GHS501 - 1,000	64	31.4
GHS 1,000 - 2,000	45	22.1
Above GHS 2,000	33	16.2
Smoking Status (n=204)		
Smokers	37	18.1
Non-smokers	167	81.9
Alcohol drinking status (n=204)		
Drinkers	112	54.9
Non-drinkers	92	45.1

4.2 Assessment of the knowledge, Attitudes and Practices of Prostate Cancer

Responses to questions on prostate cancer knowledge are shown in Table 3. Of all respondents, 45.8% knew that old age may lead to prostate cancer and 30.4% knew that one may have developed prostate cancer and show no symptoms at all. The proportion of respondents who knew that vomiting is not an expected symptom of prostate cancer was 31.9% while 28.6% knew that the recommended age for prostate cancer screening in Ghana is not 50 years. The median of the composite scores of prostate cancer knowledge was 5 (IQR: 4 – 7).

Table 3: Responses to knowledge on prostate cancer risks, symptoms and screening

Variable	Yes n (%)	No n (%)
Knows that old age may lead to developing pc	93 (45.8)	110 (54.2)
Knows that abstaining from sexual intercourse may not lead to developing prostate cancer	121 (59.3)	83 (40.7)
Knows that previous family history of prostate cancer indicates the likelihood of developing the disease	109 (53.4)	95 (46.6)
Knows that one may have developed prostate cancer and show no symptoms at all	62 (30.4)	142 (69.6)
Knows that if symptoms appear, one of the common ones is frequent urination	113 (55.4)	91 (44.6)
Knows that vomiting is not an expected symptom of prostate cancer	65 (31.9)	139 (68.1)
Knows that the chances of developing prostate cancer can be reduced by lifestyle changes	83 (41.1)	119 (58.9)
Knows that prostate cancer may be cured depending on when it is detected	144 (70.6)	60 (29.4)
Knows that there is a way of determining if a person has prostate cancer in Ghana	157 (77.7)	45 (22.3)
Knows that the recommended age for males in Ghana to get screened for prostate cancer is not 50 years and above.	58 (28.6)	145 (71.4)

The median scores for questions on attitude are summarized in Table 4. The lowest median scores on the items for measuring attitude toward prostate cancer were recorded for the statements "Prostate cancer can be transmitted from person to person" and "Prostate cancer is a spiritual disease". The median scores for the statements "I do not need to get screened for prostate cancer" and "Prostate cancer is not a dangerous disease" were also low. The highest level of agreement was with the statement "I am willing to

take the prostate cancer screening test". The median of the composite scores of attitude toward prostate cancer risk, disease and screening was 3.7 (IQR: 3.1 – 4.1).

Table 4: Median scores on items for measuring attitude towards prostate cancer

Variable	Median (IQR)
Respondent believes that lifestyle changes can reduce the chances of developing prostate cancer	4 (3 - 5)
Respondent believes that he is not at risk of developing prostate cancer	3 (2 - 5)
Respondent believes that he does not need to get screened for prostate cancer	2 (1 - 4)
Respondent believes that the food he eats cannot increase or decrease his risk of developing prostate cancer	3 (2 - 5)
Respondent believes that prostate cancer can be transmitted from person to person	1 (1 - 2)
Respondent is willing to take the prostate cancer screening test	5 (4 - 5)
Respondent believes that prostate cancer is a spiritual disease	1 (1 - 3)
Respondent believes that prostate cancer is not a dangerous disease	2 (1 - 5)
Prostate cancer is a major problem among men in Ghana	4 (2 - 5)

*Rating scale from 1 "strongly disagree" to 5 "strongly agree"

Summary statistics for scores on practices related to prostate cancer screening and prevention are presented in Table 5. The lowest median scores on prostate cancer screening and lifestyle modification practices were recorded for the statement "People who develop prostate cancer should be isolated" and highest for the statement "I will want to get screened for prostate cancer".

Table 5: Median scores on prostate cancer screening and prevention practices

Rate of agreement with statements	Median (IQR)
Respondent wants to grow older than I am now before getting screened	3 (1 - 5)
Respondent will want to get screened for prostate cancer	5 (4 - 5)
Respondent exercises regularly (at least once a week)	4 (2 - 5)
Respondent has not made any adjustments in his diet with prostate cancer prevention in mind	4 (2 - 5)
Respondent thinks people who develop prostate cancer should be isolated	1 (1 - 1)

*Rating scale from 1 “strongly disagree” to 5 “strongly agree”

4.3 Determination of the level of knowledge of prostate cancer

Figure 3 indicates the level of knowledge on prostate cancer. The proportion of respondents with high knowledge of prostate cancer risks, symptoms and screening was 63.5%.

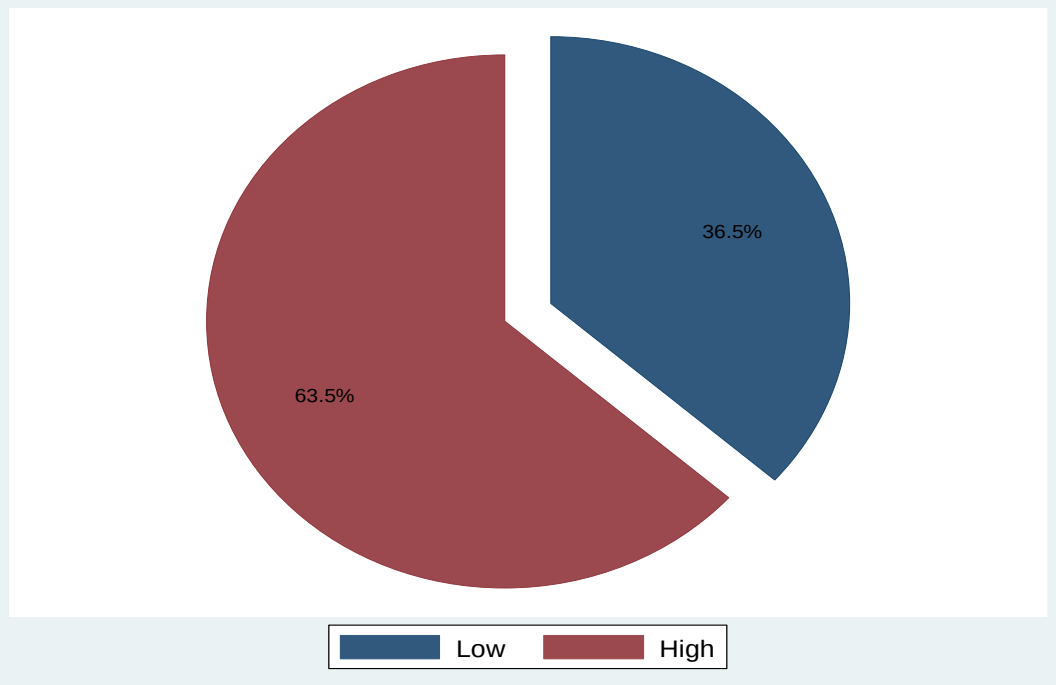

Figure 3: Levels of knowledge on Prostate cancer risks, symptoms and screening

4.4 Determination of Attitudes toward Prostate Cancer risk, disease and screening

Figure 4 shows the attitude of respondents towards prostate cancer on two levels. A little less than half of respondents (47.7%) had a positive attitude towards prostate cancer risks, disease and screening.

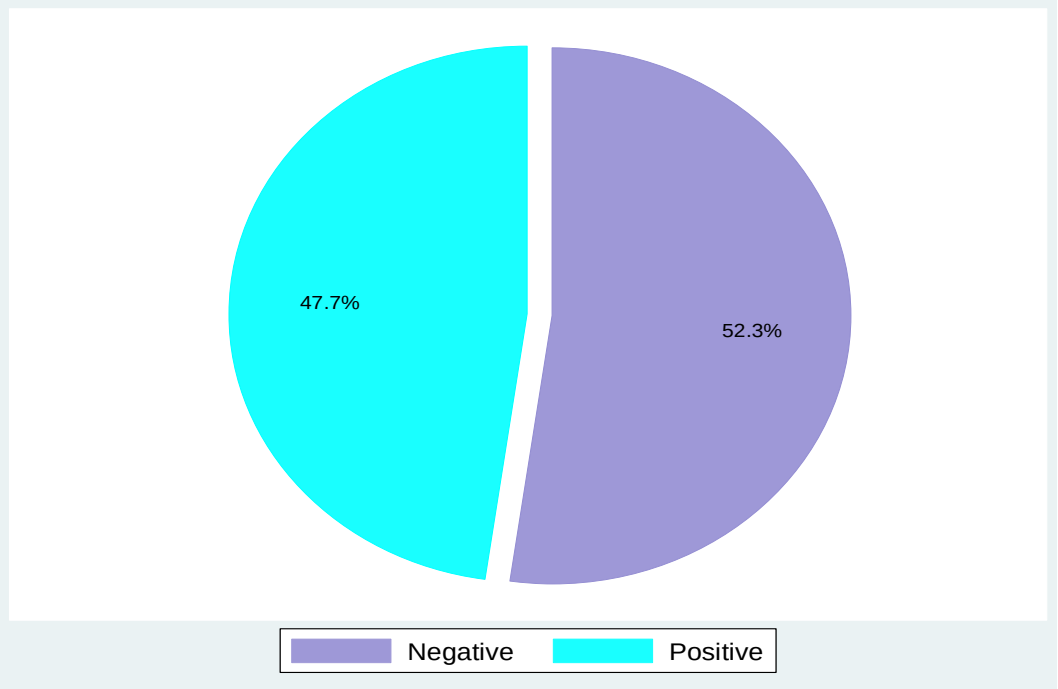

Figure 4: Attitude towards Prostate Cancer risks, disease and screening

Figure 5 shows on 2 levels the prostate cancer screening and prevention practices. Majority of respondents (57.8%) of respondents had good practices toward prostate cancer screening and prevention.

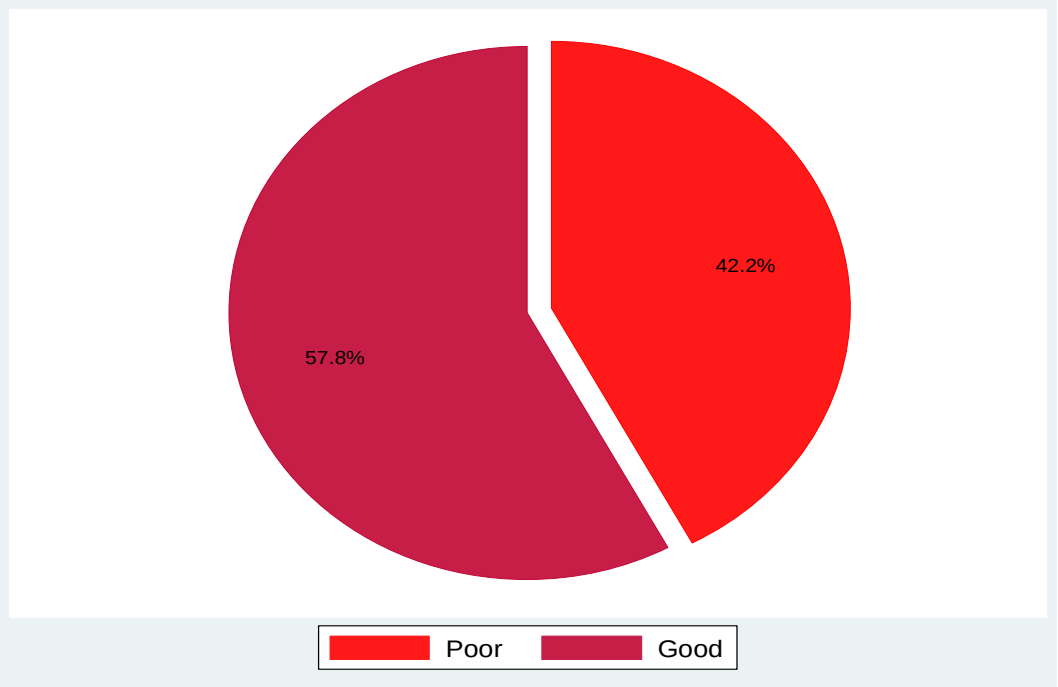

Figure 5: Levels of Prostate Cancer screening and prevention Practices

4.5 Determination of factors associated with levels of Attitude

The Wilcoxon rank-sum test showed that the median age is not significantly different between the 2 levels of attitude towards prostate cancer (p = 0.436). According to Table 6, alcohol drinking status (p= 0.022) and level of knowledge (p<0.001) were significantly associated with attitude. The other variables were not significantly associated with attitude.

Table 6: Independent association of variables with Attitude towards Prostate Cancer

Variable	Attitude		*p*-value
	Negative n (%)	Positive n (%)	
Educational Level (n=195)			0.524
No formal education	10 (5.1)	7 (3.6)	
Primary school	13 (6.7)	8 (4.1)	
Junior High School	15 (7.7)	13 (6.7)	
Senior High School	32 (16.4)	25 (12.8)	
Tertiary	32 (16.4)	40 (20.5)	
Marital Status (n=195)			0.868
Single	54 (27.7)	48 (24.6)	
Married	34 (17.4)	36 (18.5)	
Divorced	2 (1.0)	2 (1.0)	
Widowed	5 (2.6)	3 (1.5)	
Cohabiting	7 (3.6)	4 (2.1)	
Employment Status (n=195)			0.991
Civil/public servant	19 (9.7)	19 (9.7)	
Non-governmental employee	25 (12.8)	22 (11.3)	
Self-employed	35 (17.9)	31 (15.9)	
Unemployed	23 (11.8)	21 (10.8)	
Religion (n=195)			0.156
Christian	67 (34.4)	68 (34.9)	
Muslim	31 (15.9)	25 (12.8)	
Others	4 (2.1)	0 (0.0)	
Average income (n=195)			0.156
GHS500 or less	37 (19.0)	21 (10.8)	
GHS501 - 1,000	30 (15.4)	32 (16.4)	
GHS 1,000 - 2,000	22 (11.3)	21 (10.8)	
Above GHS 2,000	13 (6.7)	19 (9.7)	
Smoking Status (n=195)			0.759
Smokers	18 (9.2)	18 (9.2)	
Non-smokers	84 (43.1)	75 (38.5)	
Alcohol drinking status (n=195)			0.022*
Drinkers	48 (24.6)	59 (30.3)	
Non-drinkers	54 (27.7)	34 (17.4)	
Level of knowledge (n=192)			< 0.001***
Low	48 (25.0)	21 (10.9)	
High	52 (27.1)	71 (37.0)	
Practices (n=192)			0.672
Poor	43 (22.4)	36 (18.8)	
Good	58 (30.2)	55 (28.6)	

The logistic regression model fitted by backward elimination to predict attitude is shown in Table 7. The odds of having a positive attitude toward prostate cancer is 4.2 times higher among unemployed respondents compared to self-employed respondents (AOR= 4.15, 95% CI: 1.3, 13.11). Respondents who earn an average monthly income of GHS 501 to GHS 1,000 (AOR= 3.83, 95% CI= 1.23, 11.88), GHS 1,001 to GHS 2,000 (AOR= 4.14, 95% CI: 1.24, 13.80) and above GHS 2,000 (AOR= 6.12, 95% CI: 1.66, 22.57) respectively, have 3.8, 4.1 and 6.1 greater odds of having a positive attitude toward prostate cancer than those who earn GHS 500 or less. Respondents who drink alcohol have a 2 times higher odds of having a positive attitude toward prostate cancer than those who do not take alcohol (AOR= 2.13, 95% CI: 1.13, 4.02). Compared to having a low level of prostate cancer knowledge, having a high level of knowledge on prostate cancer is associated with a 3 times greater odds of having a positive attitude toward prostate cancer (AOR= 3.01, 95% CI: 1.51, 5.97). Thus, being unemployed, having a monthly income of GHS 501 to GHS 1,000, GHS 1,000 to GHS 2,000 and above GHS 2,000, being an alcohol drinker and having high knowledge are factors that significantly influence attitude towards prostate cancer.

Table 7: Final multiple logistic regression model of predictors of Attitude after backward elimination

Variables	Adjusted OR	*p*-value
Employment Status		
Self-employed	1	
Unemployed	4.15 (1.31, 13.11)	0.015*
Average income		
GHS500 or less	1	
GHS 501 - 1,000	3.83 (1.23, 11.88)	0.020*
GHS 1,000 - 2,000	4.14 (1.24, 13.80)	0.021*
Above GHS 2,000	6.12 (1.66, 22.57)	0.007**
Alcohol drinking status		
Non-drinkers	1	
Drinkers	2.13 (1.13, 4.02)	0.019*
Knowledge		
Low	1	
High	3.01 (1.51, 5.97)	0.002**

$p<0.05$* $p<0.01$** $p<0.001$***

4.6 Factors associated with Prostate Cancer screening and prevention Practices

Of the 164 respondents who indicated how they heard about prostate cancer, 59.8% (98/164) claimed to have heard of it through the media while 10.4% heard of it through health workers. The proportion of respondents who had ever screened for prostate cancer was 11.7% (95% CI: 7.5%, 17.6%). The proportion of respondents who were willing to take the prostate cancer screening test was 61.2%. On smoking status, 78.4% of smokers agreed to "I exercise regularly" while 64% of non-smokers agreed to same, while 73% disagreed to "I have not made any adjustments in my diet with prostate cancer prevention in mind" and 50.3% of non-smokers disagreed to same. The Wilcoxon rank-sum test showed that median age is not significantly different among the two categories of prostate cancer screening and lifestyle modification practices (p = 0.729). The bivariate analysis between practices and the variables of interest is shown in Table 8. Smoking

status is significantly associated with practices (p= 0.005). All the other variables were not significantly associated with practices.

Table 8: Independent association of variables with Levels of Prostate Cancer Practices

Variable	Practices		*p*-value
	Poor n (%)	Good n (%)	
Educational Level (n=199)			0.49
No formal education	4 (2.0)	13 (6.5)	
Primary school	8 (4.0)	13 (6.5)	
Junior High School	12 (6.0)	17 (8.6)	
Senior High School	28 (14.1)	30 (15.1)	
Tertiary	32 (16.1)	42 (21.1)	
Marital Status (n=199)			0.581
Single	41 (20.6)	62 (31.2)	
Married	31 (15.6)	41 (20.6	
Divorced	1 (0.5)	3 (1.5)	
Widowed	6 (3.0)	3 (1.5)	
Cohabiting	5 (2.5)	6 (3.0)	
Employment Status (n=199)			0.611
Civil/public servant	15 (7.5)	23 (11.6)	
Non-governmental employee	18 (9.0)	28 (14.1)	
Self-employed	34 (17.1)	36 (18.1)	
Unemployed	17 (8.5)	28 (14.1)	
Religion (n=199)			0.638
Christian	61 (30.7)	78 (39.2)	
Muslim	21 (10.6)	35 (17.6)	
Others	2 (1.0)	2 (1.0)	
Average income (n=199)			0.063
GHS500 or less	26 (13.1)	35 (17.6)	
GHS501 - 1,000	34 (17.1)	30 (15.1)	
GHS 1,000 - 2,000	16 (8.0)	26 (13.1)	
Above GHS 2,000	8 (4.0)	24 (12.1)	
Smoking Status (n=199)			0.005**
Smokers	8 (4.0)	29 (14.6)	
Non-smokers	76 (38.2)	86 (43.2)	
Alcohol drinking status (n=199)			0.216
Drinkers	43 (21.6)	69 (34.7)	
Non-drinkers	41 (20.6)	46 (23.1)	
Knowledge (n=196)			0.366
Low	27 (13.8)	43 (21.9)	
High	57 (29.1)	69 (35.2)	

$p<0.05$* $p<0.01$** $p<0.001$***

The logistic regression model fitted to predict practices related to prostate cancer is shown in Table 9. Smokers have a 3.7 times greater odds of having good prostate cancer practices compared with non-smokers (COR= 3.68, 95% CI: 1.52, 8.92).

Table 9: Final logistic regression model of predictors of Practices after backward elimination

Variables	Crude OR	*p*-value
Smoking Status		
Non-smokers	1	
Smokers	3.68 (1.52, 8.92)	0.004**

p<0.01**

4.7 Factors associated with Level of knowledge on Prostate Cancer

The Wilcoxon rank-sum test indicated that the median ages are significantly different between the two levels of knowledge of prostate cancer (p= 0.041). Table 10 shows the bivariate analysis done to determine the association between level of knowledge and the factors of interest. Educational level (p= 0.005), employment status (p<0.001), religion (p= 0.03), average monthly income (p= 0.002) and attitude (p<0.001) were significantly associated with level of knowledge.

Table 10: Independent association of variables with Levels of knowledge

Variable	Levels of knowledge		*p*-value
	Low n (%)	High n (%)	
Educational Level			0.005**
No formal education	11 (5.5)	6 (3.0)	
Primary school	11 (5.5)	8 (4.0)	
Junior High School	12 (6.0)	16 (8.0)	
Senior High School	20 (10)	40 (20)	
Tertiary	19 (9.5)	57 (28.5)	
Marital Status			0.082
Single	38 (19.0)	65 (32.5)	
Married	22 (11.0)	52 (26.0)	
Divorced	1 (0.5)	2 (1.0)	
Widowed	4 (2.0)	5 (2.5)	
Cohabiting	8 (4.0)	3 (1.5)	
Employment Status			<0.001***
Civil/public servant	3 (1.5)	33 (16.5)	
Non-governmental employee	16 (8.0)	33 (16.5)	
Self-employed	29 (14.5)	40 (20.0)	
Unemployed	25 (12.5)	21 (10.5)	
Religion			0.03*
Christian	43 (21.5)	95 (47.5)	
Muslim	27 (13.5)	31 (15.5)	
Others	3 (1.5)	1 (0.5)	
Average income			0.002**
GHS500 or less	33 (16.5)	28 (14.0)	
GHS501 - 1,000	16 (8.0)	47 (23.5)	
GHS 1,000 - 2,000	17 (8.5)	27 (13.5)	
Above GHS 2,001	7 (3.5)	25 (12.5)	
Smoking Status			0.345
Smokers	16 (8.0)	21 (10.5)	
Non-smokers	57 (28.5)	106 (53.0)	
Alcohol drinking status			0.578
Drinkers	39 (19.5)	73 (36.5)	
Non-drinkers	34 (17.0)	54 (27.0)	
Attitude			<0.001***
Negative	48 (25.0)	52 (27.1)	
Positive	21 (10.9)	71 (37.0)	
Practices			0.366
Poor	27 (13.8)	57 (29.1)	
Good	43 (21.9)	69 (35.2)	

$p<0.05$* $p<0.01$** $p<0.001$***

The backward elimination used to fit the logistic regression model to predict level of prostate cancer knowledge is shown in Table 11. Respondents who are non-governmental workers but not self-employed have an 81% reduced odds of having high knowledge of prostate cancer compared to those who are civil/public servants (AOR= 0.19, 95% CI: 0.05, 0.76). Among men who are self-employed, there is an 88% less odds of having high prostate cancer knowledge compared to those who are civil/public servants (AOR= 0.12, 95% CI: 0.03, 0.47). Furthermore, those who are unemployed are 94% less likely to have high knowledge compared to those who are civil/public servants (AOR= 0.06, 95% CI: 0.02, 0.26). The odds of having high knowledge on prostate cancer was 82% less among men cohabiting than among single men (AOR= 0.18, 95% CI: 0.04, 0.78). Respondents with a positive attitude have a 3.5 times higher odds of having high knowledge on prostate cancer than those with a negative attitude (AOR= 3.52, 95% CI: 1.77, 7.01).

Table 11: Final multiple logistic regression model of predictors of Levels of knowledge after backward elimination

Variables	Adjusted OR	*p*-value
Employment Status (Ref: Civil/public servant)		
Non-governmental employee	0.19 (0.05, 0.76)	0.019*
Self-employed	0.12 (0.03, 0.47)	0.002**
Unemployed	0.06 (0.02, 0.26)	<0.001***
Marital status (Ref: Single)		
Cohabiting	0.18 (0.04, 0.78)	0.022*
Attitude (Ref: Negative)		
Positive	3.52 (1.77, 7.01)	<0.001***

$p<0.05$* $p<0.01$** $p<0.001$***

CHAPTER FIVE

DISCUSSION

The median age of respondents, 34.5 years is comparable with that from a similar study conducted by Wanyagah, (2013) where it was 38 years but quite different from that by (Oranusi et al., 2012) where the mean age was 45.1 years.

The proportion of respondents with a high level of knowledge (63.5%) was comparable with that in the study by Wanyagah, (2013) (64%). It is important to note that one area where the respondents demonstrated low knowledge was on the age at which it is recommended for men in Ghana to screen for prostate cancer. This is complicated by the fact that majority (69.6%) did not know that one may have developed prostate cancer and show no symptoms at all. It is matter of concern that respondents erroneously expect to see symptoms of disease to know they have developed it. In part, this may be the reason for which majority are of the opinion that screening is best started at 50 years. The implication of this is that early detection rates will be low and the disease may be detected among an otherwise larger proportion of people at more advanced stages, in which case the prognosis may be worse. Also notable is the fact that a good proportion did not know that specific lifestyle modifications could reduce the risk of developing prostate cancer. Considering the poor socio-cultural perception of disease causation (de Graft Aikins, Anum, Agyemang, Addo, & Ogedegbe, 2012), this lack of knowledge provides opportunity for other unfounded claims as to prevention and control of the disease to gain acceptance. It must, however, be mentioned that a lot of respondents rightly disagreed that prostate cancer is a spiritual disease.

On prostate cancer knowledge, the current study underscores the need to improve knowledge on prostate cancer risks and symptoms among men even though the proportion of respondents with high level of knowledge was relatively high. In a similar study by Adeloye et al., (2016) and in another by Yeboah-Asiamah et al., (2017), similarly high level of knowledge was found. This notwithstanding, the current study found low proportions of respondents that did not know much about prostate cancer symptoms, the need for individuals to begin screening at an early age and to do so regularly. It is particularly important to emphasize the opportunities offered by early screening and lifestyle modifications in order to reduce prostate cancer incidence and improve its prognosis.

That those who are unemployed, self-employed and their employees are less likely to have a high level of knowledge on prostate cancer than civil or public servants is comparable with a similar study conducted in Nigeria, where a relatively higher proportion of respondents with high level of prostate cancer knowledge were public servants (Oranusi et al., 2012). It is also likely that civil servants working in a more structured and formal environment will have access to education on health matters through their unions or worker association meetings and other inter-sectorial interactions with their colleagues in the health sector. Though not significantly associated with level of prostate cancer knowledge it must be mentioned that a higher proportion of civil servants (89.4%) had at least senior high school education while only 49.3% of self-employed respondents were in this same category.

As was found in the current study, respondents with a positive attitude towards prostate cancer were more likely to have high level of knowledge. That people with high

knowledge on prostate cancer have a greater likelihood of having a positive attitude is consistent with the finding. A similar observation was made by Yeboah-Asiamah et al., (2017) in their study in the Sunyani Municipality. This suggests that knowledge on prostate cancer influences an individual's attitude toward the disease.

Regarding the attitude towards prostate cancer, the median score on the composite score of attitude (3.7) is comparable with that from another study conducted in the USA where it was 4 (Odedina et al., 2011). It was clear from the present study that respondents were willing to take the screening test, however, only 11% had ever taken it. Such high willingness to take the test provides an opportunity for increased uptake of prostate screening in order that early detection, and consequently cure rates, would increase. It must be noted that with increasing life expectancy, the incidence of prostate cancer as a non-communicable disease would increase. High willingness to screen provides an opportunity for control of the disease.

The unemployed respondents were found to be 3 times more likely to have a positive attitude toward prostate cancer compared to the self-employed. This observation is paradoxical when juxtaposed with the finding that positive attitude towards prostate cancer increases with increasing average monthly income. It is worth noting that the average income influences positive attitudes differently than employment status does, though the two are admittedly related to each other. In a study by Quaife et al., (2015) they assert that such conflicting attitude towards cancer is to be expected. People with higher incomes are more likely to have more cancer survivors or people with better cancer treatment outcomes in their social networks than otherwise and are therefore more likely to have relatively more positive attitudes.

Non-drinkers of alcohol have a more positive attitude toward prostate cancer possibly because the educational campaigns have usually targeted them knowing they are at a higher risk. They are therefore more likely to have positive attitudes owing to the influence of information they may have gained over time.

On practices related to prostate cancer screening and prevention, a significant proportion of the men indicated that "I have not made any adjustments in my diet with prostate cancer prevention in mind". This is reinforced by the fact that most of them admitted that "I am not at risk of developing prostate cancer" and also that "the food I eat cannot increase or decrease my risk of developing prostate cancer". This poor perception of the risk of developing prostate cancer impacts poor practices and must be addressed to improve outcomes. Studies by Lavery et al.,(2016) and Zhang et al., (2017) have shown that diet plays a role in prostate cancer development; while high fat diets, red meat and diary products increase the risk of developing prostate cancer, diets rich in vitamin D, soy and omega-6 fatty acids are protective of the disease. Poor perception of the risk of developing prostate cancer such as this may influence poor practices.

Smokers are more likely to have good practices than non-smokers and this suggests that they may be making up for their increased risk of developing the disease by adopting other healthier habits. This is even clearer when the fact is considered that a bigger proportion of smokers (78.4% of smokers compared to 64% of non-smokers) agreed to exercising regularly; and a bigger proportion of smokers (73%) disagreed to not making dietary changes in respect of preventing prostate cancer than the proportion of non-smokers who made the same claim (50.3%).

One strength of this study, was the involvement of young adult males. Most studies found and reviewed in this work included include men 30 years or above. The need to include younger men, to assess their risk and perceptions early enough is important. This study included adult males who are 18 years or above. One limitation of this study is that responses to the questionnaire were self-reported. It may be the case that some respondents assuming what the ideal responses to the questionnaire items might be provided answers which were at variance with their everyday practices.

CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

While the level of knowledge on prostate cancer was generally appreciable, knowledge on prostate cancer symptom recognition and risk reduction were quite low. About half of respondents had a negative attitude toward prostate cancer and this was swayed mainly by poor perception of risk. Poor practices related to prostate cancer among men in the Awutu Senya district of Ghana owe mainly to low uptake of screening and poor dietary adjustments. Factors that influence attitude toward prostate cancer include being unemployed or self-employed, average monthly income, alcohol drinking status and level of knowledge on prostate cancer. The only factor predictive of practices related to prostate cancer screening and prevention was smoking status. Being a non-governmental employee, self-employed or unemployed, cohabiting with a partner, and attitude towards prostate cancer were factors that influence level of prostate cancer knowledge in the Awutu Senya district of the Central region.

6.2 Recommendations

The following are recommended to the identified institutions to reduce incidence of prostate cancer and improve early detection:

Ministry of Health

By policy, all adult men should be routinely offered the opportunity to screen for prostate cancer when they seek care from any health facility. This approach though passive (since most men do not access healthcare regularly) will provide the opportunity for increased

uptake of prostate cancer screening. This is advantageous because most men were willing to get screened.

Regional and District Health Directorate

Health professionals must lead the education campaign against prostate cancer and emphasize behaviour change. Educational campaigns against prostate cancer should focus on symptom recognition, risk identification and reduction through the adopting of healthier lifestyle changes.

Health promotion efforts should advocate for small and medium scale enterprise associations to include health education and for that matter education on prostate cancer in their meeting schedules.

Researchers

Further research should focus on investigating the relationship between alcohol drinking status and attitude toward prostate cancer, and that between smoking status and prostate cancer practices. The current study indicates that non-drinkers of alcohol have a reduced likelihood of having a positive attitude toward the disease and also that smokers have poorer practices than non-smokers. Further studies to look into why these may be the case will be useful in designing and targeting interventions.

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APPENDICES

Appendix A: Participant's Consent form

Consent Information/ Statement of Consent (structured survey questionnaire)

MASTER OF PUBLIC HEALTH

DEPARTMENT OF SOCIAL AND BEHAVIOURAL SCIENCES

SCHOOL OF PUBLIC HEALTH, UNIVERSITY OF GHANA, LEGON

CONSENT INFORMATION

PURPOSE OF RESEARCH

You are invited to participate in a research study on Knowledge and Awareness of Prostate Cancer among men. This study is to examine the awareness, knowledge and attitude men have about prostate cancer in the Awutu Senya East Municipality.

You are being selected as a possible participant in this study because you meet our selection criteria. This study is looking for a minimum of 206 participants.

VOLUNTARY PARTICIPATION

Your participation in this study is entirely voluntary. Your decision not to participate will not have any negative effect on you or on your relation. In the course of the study you can withdraw anytime you want to, without any consequences.

DURATION OF STUDY INVOLVEMENT

This research study is expected to take approximately 6 weeks (21st May to 29th June) to administer research questionnaire to selected participants and to collect the data.

Responses will be put together and analysed in the first week of July. The final report should be raedy by the end of July, 2018. It is estimated that each participant will be interviewed for less than 20 minutes.

PROCEDURES

If you choose to participate, the research assistant will explain all the procedures to be followed in a language you understand. You will be given the opportunity to ask all questions you may have and further explanations will be given. Kindly direct all your queries to the research assistant prior to responding to the questions in the questionnaire hence your consent is needed before it commences.

Signing or Thumb printing of Questionnaire

If you agree to participate, you will be requested to sign a consent form or thumb print if you wish to indicate that you fully agree to take part. This will be done after understanding the purpose of study and agreeing to be part of study.

Administration of Questionnaire

A set of questions will be asked by the research assistant for which you will be requested to provide genuine answers as much as possible. You can however decide not to answer questions you feel uncomfortable with. Each questionnaire will take less than 30 minutes to complete.

Risks

There are no risks attached to responding to the questionnaires. Your identity will not be disclosed whatsoever in this study; however for purposes of data analysis each form will be coded.

PARTICIPANT RESPONSIBILITIES

As a participant, your responsibilities include:

- Follow the instructions of the research assistant
- Complete your questionnaires as instructed
- Ask questions as you think of them
- Tell the research assistant if you change your mind about staying in the study

WITHDRAWAL FROM STUDY

If you first agree to participate and later change your mind, you are free to withdraw your consent and discontinue your participation in the study. Your decision will not affect you in any way.

POSSIBLE RISKS, DISCOMFORTS, AND INCONVENIENCES

The study involves no risk, however, discomfort is anticipated given the sensitive nature of the topic. Questions will be asked about your background, knowledge and practices related to the topic. Some questions focus on your personal life and you may feel uncomfortable answering those questions or you may not have answer to a particular question. You are free to skip any questions you are not comfortable answering.

You should talk with the research assistant if you have any such discomforts and ask questions whenever you want for clarification. You are also free to skip any question you are not comfortable answering.

POTENTIAL BENEFITS

There is no direct benefit to the participant of this study however the information you will provide will contribute to the overall knowledge on men's awareness concerning prostate cancer. This information will help us in knowing how men knowledge and their awareness concerning prostate cancer. We further hope that the outcome of this study would be used to advice on policies that bother prostate cancer especially strategies that seek to address community attitude and towards prostate cancer.

PARTICIPANT'S RIGHTS

You should not feel obligated to agree to participate. Your questions should be answered clearly and to your satisfaction. If you decide not to participate, tell the research officer.

CONFIDENTIALITY

We would like to assure you that whatever information you provide will be handled with strict confidentiality, will be used purely for research purposes, and will never be used against you. Data analysis will be done at the aggregate level to ensure anonymity. Your name or personally identifying information will not be published in any report. Some staff of the research team may sometimes review the research records, but no unauthorized individual(s) will be able to access your information.

The results of this study may be presented at scientific or public health meetings or published in scientific or public health journals. Your identity and/or your personal information or that of your relation will not be disclosed except as authorized by you or as required by law. No response given will be disclosed to any unauthorized persons. Neither your name nor any identity traceable to you or your relation will be indicated on the survey forms.

CONTACT INFORMATION

Questions, Concerns, or Complaints: If you have any questions, concerns or complaints about this research study, its procedures or risks and benefits, you should ask the research assistant.

Independent Contact: If you are not satisfied with how this study is being conducted, or your questions/ concerns etc. are not satisfactorily answered by the research assistant or if you have further concerns, complaints, or general questions about the research or your rights as a participant, please contact:

Hannah Frimpong

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Statement of Consent

I have read this consent form or it has been read and explained to me. I have had the opportunity to discuss this research study with …….. And or his/her study staff. I have had my questions answered by them in a language I understand. The risks and benefits have been explained to me. I believe that I have not been unduly influenced by any study team member to participate in the research study by any statement or implied statements. I understand that my participation in this study is voluntary and that I may choose to withdraw at any time. I freely agree to participate in this research study.

I understand that information regarding my personal identity/ that of my relation will be kept confidential. By signing this consent form, I have not waived any of the legal rights that I have as a participant in a research study.

Participant signature/Thumb print_____

Date _____

(Day / month / year)

Appendix B: Questionnaire

KNOWLEDGE, ATTITUDE AND PRACTICES ABOUT PROSTATE CANCER AMONG MEN IN THE AWUTU SENYA EAST MUNICIPALITY
I am a student of the School of Public Health, University of Ghana**.** The administration of this questionnaire is to solicit your response on the above topic. All the information is strictly for academic purposes and will be highly treated with the greatest level of confidentiality. Thank you.

1	Age at last birthday	……years
2	Educational level of respondents	[ ] No formal education [ ] Primary [ ] JHS [ ] SHS/Tech/Voc [ ] Tertiary
3	Marital status	[ ] Single [ ] Married [ ] Divorced [ ] Widower [ ] Cohabiting
4	Employment	[ ] Civil servant/public servants [ ] Nongovernmental employee [ ] Self-employed [ ] Unemployed
5	Religion	[ ] Christian [ ] Muslim [ ] Traditionalist

		[ ] Others, (specify)……
6	Average income	[ ] GH¢500 or less [ ] GH¢ 501- 1000 [ ] GH¢ 1001 - 2000 [ ] Above GH¢ 2000
7	Do you smoke?	[ ] Yes [ ] No
8	Do you drink alcohol?	[ ] Yes [ ] No
9	Have you heard of Prostate Cancer?	[ ] Yes [ ] No
	If 'No' skip to SECTION B	
10	How did you hear about prostate cancer? (Please tick the most appropriate)	[ ] Through the media (TV, radio, internet) [ ] from a relative or friend [ ] from a health worker [ ] In school [ ] Other, please specify……..
11.	Have you ever been screened for prostate cancer?	[ ] Yes [ ] No

SECTION B: Knowledge on Prostate cancer				
No.		Agree	Don't know	Don't Agree
1	old age may lead to developing prostate cancer			
2	Abstaining from sexual intercourse may lead to developing prostate cancer			
3	Previous family history of prostate cancer indicates the likelihood of developing the			

	disease			
4	One may have developed prostate cancer and show no symptoms at all			
5	If symptoms appear, one of the common ones is frequent urination			
6	Vomiting is an expected symptom of prostate cancer			
7	The chances of developing prostate cancer cannot be reduced by lifestyle changes			
8	Prostate cancer cannot be cured no matter when it is detected			
9	There is no way of determining if a person has prostate cancer in Ghana			
10	The recommended age for males in Ghana to get screened for prostate cancer is 50 years and above.			

Rating scale: 1 = Strongly Disagree; 2= Somewhat Disagree; 3 = Neither agree nor disagree; 4= Somewhat Agree; 5= Strongly Agree

SECTION C: Attitude toward prostate cancer, screening and treatment **Indicate the level of your agreement or disagreement with the following statements:**						
No.		1	2	3	4	5
1	I believe people can make lifestyle changes to reduce the chances of developing prostate cancer					
2	I am not at risk of developing prostate cancer					
3	I do not need to get screened for prostate cancer					
4	The food I eat cannot increase or decrease my risk of developing prostate cancer					
5	Prostate cancer can be transmitted from person to person					

6	I am willing to take the prostate cancer screening test					
7	Prostate cancer is a spiritual disease					
8	Prostate cancer is not a dangerous disease					
9	Prostate cancer is a major problem among men in Ghana					

SECTION D: Practices						
No.		1	2	3	4	5
1	I want to grow older than I am now before getting screened					
2	I will want to get screened for prostate cancer					
3	Money is not a barrier to getting tested for prostate cancer					
4	I exercise regularly (at least once a week)					
5	I have not made any adjustments in my diet with prostate cancer prevention in mind					
6	People who develop prostate cancer should be isolated					

Thank you!