# PATIENT'S AND FAMILY'S PERCEPTIONS TOWARDS DIAGNOSIS OF PROSTATE CANCER IN THARAKA NITHI COUNTY, KENYA

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## DECLARATION AND RECOMMENDATION

**Declaration**

This thesis is my original work and has not to the best of my knowledge, been presented for a degree award in any other university.

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**Recommendation**

This thesis has been examined, passed and submitted with our approval as University supervisors.

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## DEDICATION

I dedicate this thesis to my loving family for their inspirational encouragements to achieve greater heights and support during this research endeavor.

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## ABSTRACT

Cancers are leading cause of death in developed nations and the second leading cause of death in developing nations. One of the most frequently diagnosed cancer among men is Prostate cancer (PCa) which is a disease process whereby cells of the prostate proliferate abnormally, ignoring growth-regulating signals in the environment surrounding the cells. Perceptions influence health and well-being outcomes of PCa patients. It is important that health professionals understand the patient's and family's perceptions to the diagnosis so that they can provide optimal care. Unfortunately, the perceptions associated with the diagnosis of PCa are not directly addressed in many countries including Kenya. In Tharaka Nithi County, reviewed literature shows that perceptions of prostate cancer patients and their families are largely unknown despite their effect on the prostate cancer management and health seeking behaviour. This is because no such research has been done in Tharaka Nithi County. Therefore, this research study aimed at exploring the patient's and family's perceptions towards diagnosis of prostate cancer in Tharaka Nithi County, Kenya. The study population comprised of families and PCa patients attending Chogoria mission hospital, Magutuni sub-county hospital, Chuka county hospital and Tharaka sub-county hospital which were selected purposefully, from which a sample of 70 patients and 65 family members was obtained. Purposive sampling method was used to sample patients and families where the required patient and family was identified and participated in the study. Data was collected using interview schedules and focus group discussions and summarized using descriptive statistics. Statistical analyses for association between variables was done using chi-square tests. The study revealed that; men in the age group 60-70 were most prone to the development of prostate cancer. A high percentage of patients and families perceived that prostate cancer was caused by genetic factors and should be treated by medical personnel. Over 50% of the patients and families had no idea of the symptoms of prostate cancer neither had they heard of it before the patient was diagnosed. The study also revealed that 50% of the patients suffered hypertension, 80% did not believe the diagnosis at first and over 50% perceived the diagnosis as a death sentence. PCa patients showed the highest level of acceptance and lung cancer patients the poorest acceptance of illness. Over 90% of the patients and families observed general health improvement after medication. Over 78% of the patients and family's had embraced insurance as a way of meeting the medical expenses. A study in Tanzania showed that men had poor health seeking behaviour after diagnosis with PCa and this was because they felt that their masculinity had been eroded. The statistics in this study portray a good health seeking behaviour following the diagnosis of prostate cancer. In conclusion, the outcome of this study demonstrated that patients and families had low level of knowledge about PCa. A strong correlation was demonstrated between family history and increased risk of PCa. However, it was demonstrated that family history of PCa did not increase levels of knowledge on the causes of PCa. The study recommends national policy on Prostate Cancer diagnosis and public health information on the diagnosis and treatment of prostate cancer.

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## ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACS: | American Cancer Society |
| ADT: | Androgen depletion therapy |
| IOM: | International Organization for Migration |
| KNBS: | Kenya National Bureau of Statistics |
| MoH: | Ministry of Health |
| MScN: | Master of Science in Nursing |
| NICE: | National Institute for health Care Excellence |
| PCa: | Prostate Cancer |
| PSA: | Prostate-specific antigen test |
| SPSS: | Statistical Package for Social Sciences |
| TRUS | Transrectal Ultrasound |

# CHAPTER ONE
# INTRODUCTION

## 1.1 Background Information

Cancers are the leading cause of deaths in developed countries and the second leading cause of death in developing countries with the leading cause of death being cardiovascular diseases (Calys-Tagoe, Yarney, Kenu, Adwoa, Amanhyia, Enchill & Obeng, 2014). In 2012, 14.1 million new cancer cases were recorded globally with 8.2 million deaths and 32.6 million still living with the disease (Calys-Tagoe *et al*., 2014). The ministry of health (MoH, 2014) estimates that by 2020, out of the cancer cases reported globally, 70% will come from developing countries. Breast cancer that predominantly affects women and lung cancer that is mostly diagnosed in males are the two commonly cancers that are diagnosed and the two are leading in causation of global cancer-related deaths (Calys-Tagoe *et al*., 2014). However, according to Etawo, Ekeke, & Mbiaba (2012) the second most frequently diagnosed cancer among men is prostate cancer (PCa).

Cancer of the prostate is a disease pathway whereby prostate gland cells proliferate abnormally, ignoring growth-regulating signals in the environment surrounding the cells (Wolf, 2013). Prostate cancer is the second most prevalent malignancies in men globally and the second most common cause of cancer deaths in men older than 55 years of age, accounting for an estimated 1.1 million new cases yearly (King, Evans, Moore, Paterson, Sharp, Persad and Huntly, 2015). The burden of PCa is projected to grow to approximately 1.7 million new cases by 2030 simply due to the growth and aging of the world's population (Jemal, Lortet-tieulent, Ward, Ferlay, Brawley, & Bray, 2012). According to Roth, Weinberger, & Nelson (2008) PCa is the most prevalent type of cancer among males in the United States with an estimated 218,000 new cases of prostate cancer being diagnosed and 27,000 patients succumbing from the ailment every year. Moreover, approximately one in every five American men is affected by the disease (Roth *et al*., 2008).

Prostate cancer is the leading cancer in both occurrence and the number of deaths in Africa though African men suffer disproportionately from prostate cancer as compared to men from other parts of the world (Rebbeck, Zeigler-Johnson, Heyns

and Gueye, 2011). However, it is quite difficult to accurately describe the burden of PCa in Africa due to poor cancer registration systems (Adeloye, David, Aderemi, Iseolorunkanmi, Oyedokumi, Ayo and Iweala, 2016). According to Jemal, Lortet-tieulent, Ward, Ferlay, Brawley and Bray, (2012) although incidence rates of PCa are generally highest in the developed countries, the highest estimated death rates of PCa are recorded in low-to-medium income areas of South America, the Caribbean, and sub-Saharan Africa.

In Kenya, Prostate cancer is among the top three killer cancers and low awareness, inadequate knowledge and perceptions about the disease among Kenyan men has been blamed for undermining efforts to combat it (MoH, 2014). According to Kenya National Bureau of Statistics (KNBS, 2010) prostate cancer is the most common cancer afflicting male gender, with at least 1,000 new cases reported each year and with approximately 850 deaths annually. The numbers could be higher since many PCa cases often go unreported (KNBS, 2010). In Tharaka Nithi County, the prevalence of prostate cancer is largely unknown because of poor registration systems (KNBS, 2010).

The variations in the deaths among continents and countries are as a result of patient's and family's perceptions towards prostate cancer diagnosis, early screening and early detection among the developed countries. People are affected by prostate cancer in so many ways just like other forms of cancer and depending on the perceptions they have towards PCa, result in many health-seeking behaviours (Kolahdooz, Jang, Corriveau, Gotay, Johnston and Sharma, 2014). In addition, local perceptions, beliefs and cultural norms generally influence the management of prostate cancer particularly in the developing countries (Kolahdooz *et al*., 2014).

Men suffering from PCa are likely to have a long illness pathway thus, imposing a burden to the patients, family and healthcare resources (Lepore, Helgeson, Eton, & Schulz, 2003). In addition, patient's and family's perceptions and values concerning prostate cancer influence their health behaviour, health outcomes and the quality of life following prostate cancer diagnosis (Lepore *et al*., 2003). Daher (2012) states that most of the perceptions are as a result of culture which is defined as a set of

shared and socially transmitted ideas about the world that is usually passed down from one generation to another. When culture applies to illness, the beliefs and values from a cultural model of disease influence the perceptions about the illness meaning, the treatment options that are useful, and the likely outcome of health behaviours that are related to the control and management of disease complications (Daher, 2012).

Traeger, Penedo, Gonzalez, Dahn, Lechner, Schneiderman and Antoni, (2009) investigated the perceptions of prostate cancer patients towards diagnosis of prostate cancer and the study revealed that the perceptions on treatment options, the coherence of illness and the complications associated with prostate cancer affected the health-seeking behaviours of the patients. Traeger *et al*. (2009) concluded that patient's perceptions and their cultural beliefs about PCa should be recognized as important aspects of patient's care following a prostate cancer diagnosis. The manner in which patients' perceptions are evaluated has implications for prostate cancer support groups that are developed to enhance the patient's survivorship (Levy and Cartwright, 2015). Thus, prostate cancer beliefs and perceptions influence men's ability to cope with their disease following diagnosis (Levy and Cartwright, 2015).

Wu, Mohamed, Winkel, & Diefenbach (2013) state that when the patient and their family perceive that prostate cancer is treatable and the treatment will take a short duration of time, the patient and the family is more pro-active in seeking treatment as well as engaging in family activities. In addition, when the family shares the same views of the illness as being predictable and manageable, patients use less palliative coping and positive thinking strategies. On the other hand, patient and family disagreements about prostate cancer management have been associated with worse adjustment outcomes for both patients and families (Merz, Malcarne, Ko, Sadler, Kwack, Varni & Sadler, 2011). Daher (2012) states that perceptions and values are increasingly being recognized as crucial determinants of not only of prostate cancer control behaviours but also part of the psychological and behavioral issues towards diagnosis of cancer and treatment.

A diagnosis of PCa carries a significant emotional burden given the myriad of challenges generating from cancer and its treatment. Perceptions are associated with health and well-being outcomes in prostate cancer patients and it's important that health professionals understand the patients' and families' perceptions and emotional responses to diagnosis so that they can provide optimal information and psychological care (Wu *et al*., 2013). Studies in various diseases, including diabetes, asthma and myocardial infarction, have found perceptions account for a significant proportion of the variance in a range of illness outcomes, including medication adherence, psychological morbidity and quality of life, even after controlling sociodemographic and disease predictors. This suggests that illness perceptions play an important role in patient outcomes and that intervention to change these perceptions could potentially improve patients' well-being and outcomes (Wu *et al*., 2013).

### 1.2 Statement of the problem

The burden of prostate cancer has significantly increased in the last two decades. The financial, social and emotional devastation that often accompanies a diagnosis of prostate cancer is in large part due to the perceptions surrounding the disease and these perceptions need to be urgently addressed. Many individuals associate the diagnosis of any cancer with death, and they perceive cancer as a punishment from God. Interviews with people in Kenya have shown that they perceive prostate cancer as a fatal and a disease that cannot be cured, while a number associate prostate cancer with impotence. Other myths and perceptions associated with prostate cancer include pain and suffering, helplessness, loss of control and dependence as well as isolation. Patients are often reluctant to seek cancer treatment as they perceive it to be unbearable, thus, affecting their health seeking behavior and the subsequent health outcomes. Inadequate knowledge, fear, and poor perceptions are enormous challenges in prostate cancer prevention, control, and management.

Unfortunately, the perceptions associated with the diagnosis of prostate cancer are not directly challenged or addressed in many countries with Kenya not being an exception. Moreover, limited studies in Tharaka Nithi County and Kenya in general, have led to over-reliance on research findings from elsewhere in the world, despite

the fact that patient's and family's perceptions towards diagnosis of prostate cancer are largely different. In Tharaka Nithi County, reviewed literature shows that perceptions of prostate cancer patients and families are largely unknown despite their effect on the prostate cancer management and health seeking behaviours. This is because no such research has been done on the same. Moreover, the health care providers show little importance towards patient's and family's perceptions of prostate cancer diagnosis. This study aimed at exploring the patient's and family's perceptions towards diagnosis of prostate cancer in the County of Tharaka Nithi.

### 1.3 Purpose of the study

This research study identifies patient's and family's perceptions towards diagnosis of prostate cancer in Tharaka Nithi County. The findings will be utilized to conduct further studies by researchers, drafting of appropriate policies by the policy makers and designing of appropriate strategies to control the disease in Kenya. Research findings from this study shall also contribute towards enhanced knowledge levels on prostate cancer perceptions by various stakeholders including health professionals. This will enhance the management of prostate cancer and will greatly reduce the cost of patient and family care which will subsequently increase the patient's and family's quality of lives.

### 1.4 Objectives of the Study

#### 1.4.1 Broad Objective

To determine the patient's and family's perceptions towards diagnosis of prostate cancer in Tharaka Nithi County, Kenya

#### 1.4.2 Specific Objectives

i. To assess the level of knowledge of patient's and family's in regard to prostate cancer in Tharaka Nithi County.
ii. To examine the outcome of prostate cancer diagnosis to the patient's and family's in Tharaka Nithi County.
iii. To establish the patient's and family's health seeking behaviour following prostate cancer diagnosis in Tharaka Nithi County.

## 1.5 Research Questions

i. What is the level of knowledge in regard to prostate cancer among patient's and family's in Tharaka Nithi County?
ii. What is the outcome of prostate cancer diagnosis to the patient's and family's in Tharaka Nithi County?
iii. How is health seeking behaviour of patient's and family's following prostate cancer diagnosis in Tharaka Nithi County?

### 1.5.1. Study Hypothesis

History of Prostate Cancer in the family and the Knowledge level on Prostate Cancer causes are Independent

## 1.6 Significance of the study

This was a crucial research study that shows patient's and family's perceptions towards diagnosis of prostate cancer in Tharaka Nithi County. The results of this study call for urgent health measures aimed at promoting specific knowledge levels on prostate cancer and calls for encouraging behavioural changes towards avoiding risks for the development of prostate cancer in men. The findings from this study enhanced our understanding of the associated perceptions about prostate cancer diagnosis. The study was important in the health care set up, local cancer bodies, Kenya national cancer control strategy, academicians, policy makers and the nursing profession. In the health sector, the research findings will act as a baseline study for the future researchers in Tharaka Nithi County, Kenya and the world as a whole. The findings will also be used to formulate strategies and policy modifications on prostate cancer perceptions in the health care industry. To the nursing profession, the nurses who are the primary health care providers will utilize the findings to improve their practice especially when handling patients and also expand their knowledge base.

## 1.7 Limitations and Delimitations

These were the weaknesses in the process of research study that the researcher could not control. One of this problem was that some patient's and family's initially hesitated to give consent to the research study but this was overcame by researcher's

explanation that the information to be given shall be confidential and that the research study was for purposes of academic.

### 1.8 Assumptions

In this study it was assumed that the participants were truthful in responding to the study questions. It was also assumed that prostate cancer diagnosis impacts to the patients and their families.

### 1.9 Operational Definitions

**Diagnosis** is the identification of prostate cancer after histology results**.**

**Family** is the significant others taking care of a prostate cancer patient.

**Knowledge** is defined as having information on prostate cancer. The information includes; signs and symptoms, treatment and prevention modalities for prostate cancer.

**Patient** is defined as an individual who has been diagnosed with prostate cancer

**Perception** is an opinion held by the prostate cancer patient and the family about the disease, management and health outcome.

**Prostate cancer** is defined as a cancer that affects the male prostate gland, commonly known as adenocarcinoma.

# CHAPTER TWO
# LITERATURE REVIEW

## 2.1 Overview of Prostate Cancer

Prostate cancer is an adenocarcinoma of the male prostate gland that is increasingly becoming an important health burden among men in the world (Wolf, 2013). According to Litwin and Tan (2017), the risk of suffering from PCa increases with age with men above the age of 50 years having an increased risk. However, PCa is one of the most treatable malignancies if detected early and evidence-based therapies are available for the patients which aid in minimizing the complications that result from the disease (Wolf, 2013). Some types of prostate cancer grow slowly and may need minimal or even no treatment while other types are aggressive and can spread quickly (Wolf, 2013). PCa is generally asymptomatic in the early stages but in the late phase of the ailment, symptoms occur such as decreased urinary stream, urinary frequency mostly at night, blood in the urine (hematuria), dysfunction of the erection, hips pain, back pain, ribs pain and pain in other areas as it extends to the bones, weakness or lack of neural sensation in the legs, feet, and occasional bladder loss or bowel incontinence due to the pushing on the spinal cord by the cancer cells (American Cancer Society (ACS), 2014).

### 2.1.1 Prostate cancer epidemiology

Cancer of the prostate accounts for 13.6% of male cancers and thereby making it the 2$^{nd}$ most frequently diagnosed male cancer globally. Moreover, prostate cancer is the 5$^{th}$ most diagnosed cancer for both cancers affecting males and females (Ferlay *et al*., 2011). Studies have shown that almost three-quarters of the cases of diagnosed prostate cancer occur in countries that have developed and this is approximately (644,000 cases) although mortality rates are high in developing countries (Ferlay *et al*., 2011). The prostate cancer incidence rates are continental and regional dependent, mostly as a result of variations in patient's perceptions, involvement of people in the prostate cancer screening & subsequent confirmatory tests such as biopsy that widely practiced in North America & Europe (Lozano *et al*., 2012; Ferlay *et al*., 2011). The prostate cancer incidence rates are generally more in third world developing countries for instance Caribbean, sub Saharan Africa and south America (Lozano *et al*., 2012; Ferlay *et al*., 2011). In 2008, prostate cancer had an

estimated 258,000 deaths globally, making it the 6th leading cause of death from cancer in the male gender (6.1% of all cancers) (Lozano *et al*., 2012; Ferlay *et al*., 2011).

Studies show that predominant black populations have generally high prostate cancer mortality rates. Highest mortality rate was reported in Caribbean which had 26.3/100,000 followed by Sub Saharan Africa with 18-19/100,000 then very low in Asia, and intermediate in Oceania and Europe (Lozano *et al*., 2012; Ferlay *et al*., 2011). In Kenya, the prevalence of cancer of the prostate is estimated at 9.4% by the national cancer registry (MPHS & MMS, 2011). Moreover, Uganda, Kenya and Tanzania which makes three East African countries recorded 3,391 incidences of prostate cancer with the highest being Uganda with 1,538 cases followed by Kenya with 1,087 prostate cancer cases and finally Tanzania with 766 cases. The three countries had a 2,755-mortality rate (Lozano *et al*., 2012; Ferlay *et al*., 2011). The prostate cancer reports in sub Saharan have been based in the hospitals and literature shows that very little research studies have been carried out on the populations that are indigenous. It was initially thought that Africans in the Africa continent barely developed cancer of the prostate because the life expectancy in Africa was short, high levels of diet with fibre, decreased fat levels and diseases of the liver (Angwafo *et al*., 2003). However, various studies found that cancer of the prostate was increasingly becoming a great health problem in sub Saharan African as the life expectancy increased and with ageing (Okobia, 2003).

In the rural areas of Cameroon, more research studies (Angwafo *et al*., 2003) reported that three out of thirty-four patients enrolled had cancer of the prostate and other studies at Kenyatta National Hospital showed that in a group of one hundred and eight patients, 26% had cancer of the prostate (Ngugi & Byakika, 2007). This shows that as opposed to the earlier beliefs, cancer of the prostate is frequent and a major cause of mortality and morbidity in the African countries. Additional studies at Kenyatta National Hospital have showed that a great number of patients diagnosed with prostate cancer have undergone surgery such as prostatectomy because of presenting late to the hospital (Kalande, 2006), and the late presentation was due to unclear systems of referral and inadequate levels of knowledge in regard

to prostate cancer in the country's health-care supply chain and management. Cancer of the prostate is reported to be the 2nd most single organ cancer with 9.4% after cancer of the oesophagus at 10% in the year 2000 (KEMRI, 2006). However, information on knowledge, perceptions, awareness and utilization of prostate cancer screening services was not reported (KEMRI, 2006).

## 2.2 Risk and Predisposing factors for prostate cancer

The exact prostate cancer causes are not known (Hsing and Chokkalingam, 2006) but the widely accepted risk factors are family history and age. However, other risk factors that are associated with prostate cancer are diet and lifestyle, sexually transmitted diseases (STDs), imbalances of hormones, exposure to some drugs and health-seeking behaviour (Grover and Martin, 2002). Research shows that cancer of the prostate is not common in men below the age of 40 years but as the age increases it becomes more common. (Ngugi and Magoha, 2007). The researchers further state that majority of men are ignorant to the prostate cancer status.

### 2.2.1 Age

One out of six men are likely to develop cancer of the prostate in their lifetime (Ngugi and Magoha, 2007). Aging is considered as the most significant risk factor for prostate cancer. Its incidence in men aged over 50 years is greater than 30%, getting continuously higher to approximately 80% at 80 years. Studies in the USA show that 96% of prostate cancer cases occur in men aged 55 years and above (Steele, Maylahn, Miller, Baker and Uhler, 2000). A study by Hsing, Devesa and Tsao (2000), reported that cancer of the prostate occurs in 30% of men at the age of fifty years and 90% at the age of ninety years during autopsy. Additional studies have shown that autopsy studies amongst German, Swedish, Jamaican, Chinese ang Ugandan men who had died because of other causes, had prostate cancer in 30% of men in the age group of 50-59 years old and 8% in men in the age group of 70-79 years (Steele *et al*., 2000).

Histology studies done on 108 prostate cancer patients aged 48-83 years, after surgery and ultrasound guided needle biopsy at the Nairobi Hospital, Kenyatta National Hospital & Upper Hill Medical Center showed that majority (76%) had hyperplasia of

the prostate gland and minority (26%) had prostate cancer. The findings show that in Kenya, prostate cancer becomes more common in men above forty years of age.

### 2.2.2 Genetics and heredity

Research studies that have been done previously show that having first degree relatives suffering from prostate cancer increases the risk of getting the disease (Zeegers, Ostrer and Jellema, 2003). More research studies by (Parchment, 2004) report that the mortality and morbidity of cancer of the prostate are more frequent in black populations of Caribbean and African Americans of the American south coast. The researcher further reports that black men were being diagnosed with cancer of the prostate at late stages of the disease and had low rates of survival (Parchment, 2004). Additional studies done recently all over the world evaluating the patient's characteristics in 4 populations of USA, Senegal and India found that in countries that are developing (India and Senegal) patients presented to the hospitals with the disease advanced more as compared to men in the developed countries (Zeigler-Johnson *et al*., 2008). The researchers concluded that black ethnicity and familial history of prostate cancer are key genetic determinants of the cancer of prostate in the world. Nonetheless, in Kenya, it's unknown if family history and ethnicity influence prostate cancer development among Kenyan men.

### 2.2.3 Hormonal imbalances

A study done among thirteen asymptomatic testosterone deficient men who had not been treated for prostate cancer with testosterone therapy displayed an increase in growth of prostate cancer at low concentrations of androgens (Morgentaler, Traish Guay and Rhoden, 2010). This study results suggest that indicate that androgens are key hormonal determinants in the development of prostate cancer.

### 2.2.4 Environmental factors

Studies show that prolonged exposure to heavy metals from industries such exposure to cadmium and smoking of cigarettes increases the likelihood of developing cancer of the prostate. In a study by Wu, Wu, Pu, Chen and Yang, (2011), in china among 295 men age fifty years and above, the researchers reported an association between cadmium levels in the urine and blood and increased levels of prostate specific

antigen. These results were suggestive that increased exposure to cadmium increased the risk of prostate cancer development. Dioxin a chemical agent that was used as a component of herbicides in the Vietnam war has been associated with the development of aggressive forms of prostate cancer. This was reported after recent studies by Shah *et al*., (2009). However, the researchers note that related chemicals are still in use in modern day as herbicides and it's unknown if exposure to these chemicals increases the prostate cancer risk (Shah *et al*., 2009).

### 2.2.5 Lifestyle and diet

Several studies have reported the role nutrition plays in ensuring body's protection and influencing prostate cancer outcomes. For example, vegetables, marine fish, omega-3, vitamin E and soya beans are thought to offer body protection. Moreover, animal products such saturated fats, dairy products and grilled meats have been reported to increase the prostate cancer risk (Grover & Martin, 2002). On the other hand, fish and plant diets are associated with a low prostate cancer risk (Chan, Gann, & Giovannucci, 2005).

### 2.2.6 Health seeking behaviour

The care-seeking behaviour of society is crucial because it determines whether individuals seek medication when sick and if they can help their relatives seek health care. In African setup, men are heads of the families and make decisions regarding their health and that of their households (UN, 2011). Men participation in public health has often been lacking and research suggests that men's participation can be improved by establish men's clinics and merging health services such as HIV testing & counseling with screening and management of cancer of the prostate (Crum, Spencer, & Amling, 2004). Additional related studies in black populations in the USA showed that severe urinary symptoms which were bothersome, were associated with health seeking behaviour (Sarma, Dunn, Wallner, Wei and Jacobsen 2008). These studies taken together suggest that increased health information, participating in health decisions and awareness of prostate cancer manifestations enhance men's health seeking behaviour.

### 2.2.7 Sexually transmitted infections

Some diseases that are transmitted sexually have been reported to increase the risk of developing prostate cancer. For example, a study at a Nigerian university college hospital reported an association between syphilis and high prostate specific antigen (PSA). Similar studies have showed an association between Trichomonas vaginalis infection enhanced risk of cancer of the prostate and the subsequent death arising from the diseases. Other studies have reported that men who have multiple sexual partners have an increased prostate cancer risk (Rosenblatt, Stanford & Wicklund, 2001).

### 2.2.8 Exposure to medication

Studies have established some association between cancer of the prostate and medical procedures & exposure to medications (Jacobs *et al*., 2005). However, it remains to be confirmed if exposure to medications and medical procedures enhance the prostate cancer risk in Kenya.

## 2.3 Diagnosis, Detection and Screening of prostate cancer

The diagnosis of prostate cancer is suggested by elevated prostate-specific antigen but is confirmed by histological examination of ultrasound-guided transrectal biopsies. Several methods are available for prostate cancer diagnosis but it is widely accepted that the removal of a prostate biopsy and its subsequent microscopic examination, the only method of confirmatory (Javali *et al*., 2013). Before a biopsy is done, other tests are used to assess the condition of the urinary tract and the prostate gland. This includes, digital rectal examination (DRE) and cystoscopy. DRE is used to detect the abnormalities of the prostate gland. Cystoscopy examines the bladder using thin, flexible camera tube that is inserted in the urethra and trans-rectal ultra-sonography creates images of the prostate gland using sound waves from a probe in the rectum (Marks, 2009).

### 2.3.1 Clinical diagnosis

Prostate cancer is suspected by clinicians after taking patient's history and after performing physical examinations. The examinations are determined by the presence/absence of clinical manifestations suggestive of a diseased prostate gland

such as prostatic hyperplasia, urine dribbling frequency and urgency (Marks, 2009). The preferred method of examination of the prostate gland is DRE which is performed by a professional health care provider where using gloves, a lubricated finger is inserted into the rectum to examine the prostate gland for any abnormalities and if the examiner identifies any abnormalities, further tests are necessary (Attard *et al*., 2016).

### 2.3.2 Histological investigations

Gleason score is a common system used to classify histologic characteristics of prostate cancer. The score is determined by evaluating the architecture of gland within the tumour. When prostate cancer is suspected, a biopsy is performed (Ngugi and Byakika, 2007).

### 2.3.3 Laboratory Diagnosis

Several laboratory tests are performed to enable the diagnosis and confirmation of prostate cancer after suspicious signs and symptoms.

#### 2.3.3.1 Prostate Specific Antigen (PSA)

PSA is a protein that is produced and released in blood by the cells of the prostate. In health prostates, this protein is present in the serum little quantities. However, the levels are elevated in patients with cancer of the prostate and other prostatic conditions such as benign prostatic hyperplasia. Increasing PSA levels over a period of time are associated with localized and metastasized cancer of the prostate (Roobol *et al*., 2009; Andriole *et al*., 2009).

#### 2.3.3.2 Prostate Cancer Antigen (PCA)-3

This is a noninvasive way of detecting prostate cancer at early stages of growth by use of molecular test which detects presence of messenger RNA in prostatic fluid and first voided urine (Zhou *et al*., 2011). Research studies have shown that this technique may be helpful in staging prostate cancer and monitoring the outcomes of treatment (Auprich *et al*., 2011).

#### 2.3.3.3 Homeobox protein engrailed-2

This method is based on detection of the homeobox protein engrailed (EN)-2 in urine. Studies have shown that presence of homeobox protein EN2 in urine is associated with an increased risk of prostate cancer (Morgan *et al*., 2011). This technique, is however, still undergoing further testing.

### 2.3.4 Importance of early screening

Analyzing of PSA levels in countries that are developed has led to detection of prostate cancer early and its prompt management. In Africa, screening routinely for prostate cancer has been poor, leading to decreased rates of detection, high mortality rates and poor disease management (Ajape *et al*., 2009). A study involving 196 men at Komfo Anokya Hospital in Ghana, indicated that 83.6% of the respondents had elevated PSA level and 95.5% had cancer of the prostate (Rebbeck *et al*., 2013). A similar study involving 156 Nigerian respondents showed that men lacked awareness on cancer of the prostate and screening for PCa (Ajape *et al*., 2009). A study done in Kenya showed there is a relationship between elevated PSA levels and increased prostate cancer rates in biopsy samples (Ngugi & Byakika, 2007). Moreover, it was suggested that early diagnosis is important for appropriate prostate cancer therapy (Magoha & Ngumi, 2000). Asymptomatic prostate cancers that are potentially curable can be detected by screening methods such as PSA, DRE and transrectal ultrasound (Zeigler-Johnson *et al.*, 2008).

## 2.4 Management of Prostate Cancer

The treatment of prostate cancer depends on risk stratification, age of the patient, the life expectancy of the patient and patient preference. Treatment options for PCa include surgery and radiotherapy which can either be palliative or curative, hormonal manipulation therapy also referred to as androgen depletion therapy (ADT) or a combination of these options (Roehrborn & Black, 2011). Hormonal therapy is commonly used treatment option but its associated with numerous adverse effects, including decreased bone density, reduced muscle mass and strength and a decreased physical functioning ability, all of which have an impact on the quality of life of the patient (Roehrborn & Black, 2011). According to Litwin & Tan (2017) active surveillance is another PCa cancer management option that entails serial

monitoring for the progression of the disease with the intent of providing cure and is one of the safest approaches that is preferred particularly to those with less aggressive forms of PCa of less than 10 ng/mL prostate-specific antigen. However, for metastatic prostate cancer tumors, chemotherapy is the preferred treatment option and it has shown to extend the survival rate of patients compared to ADT alone. Moreover, new vaccines, hormonal treatments, and bone-targeting agents have demonstrated efficacy in men with metastatic prostate cancer resistant to the traditional hormonal therapy (Litwin and Tan, 2017). The relationship of beliefs, attitudes, knowledge and behaviour is complex and most behavioural theories appreciate that attitudes & beliefs determine a person's decision to seek health care (Daher, 2012). Culture influences the person's health practices and health seeking behaviours. Studies have showed that some perceptions about prostate cancer can prevent detection of the disease early and lead to poor treatment outcomes. For instance, perceiving that prostate cancer is caused by black magic, believing that having conversations about prostate cancer may cause it to happen and having religious perceptions about destiny (Daher, 2012).

### 2.4.1 Prostate cancer support groups

Group interventions for patients diagnosed with prostate cancer are based on the reasoning that providing emotional support and appropriately adjusting patient's knowledge, attitudes and expectations about prostate cancer can have a positive impact and possibly the disease pathway. According to Ngugi & Magoha (2007), group interventions use information exchange and social support as the primary tools. The researchers further state that the information that is exchanged increases the knowledge of the patient in regard to PCa, management of treatment side effects and enhancing mechanisms of coping with the ailment (Ngugi & Magoha, 2007). Exchange of information is done using methods such as use of written materials, lectures, videos, discussion and modeling of successful behaviours (Cobran *et al*., 2014).

Members of the group communicate information that shows the member is esteemed, valued and cared for by members of the group. Professionals sometimes conduct the group sessions as facilitators in order to ensure they are helpful and

orderly. These professionals include psychologist, nurses and counsellors. The popularity of prostate cancer support groups has risen sharply to address the various emotional and educational needs of patients (Wituk *et al*., 2000). Studies show that support groups have been used to offer prenatal guidance, overcome addictive behaviours, deal with social problems and cope with ailments and bereavement. Support groups bring together people with similar experiences to share their frustrations, fears and concerns and minimize feelings of isolation. These groups are a low-or no-cost opportunity to meet others in similar circumstances to share common concerns and offer mutual support (Wituk *et al*., 2000).

### 2.5 Perceptions about prostate cancer

According to Odedina, Dagne, Pressey, Emmanuel, Scrivens and Larose-Pierre (2011) the financial, social and emotional burden that often accompanies a diagnosis of PCa is in large part, due to the perceptions, myths and taboos surrounding the disease. A study by Traeger *et al*., (2009) reported a group of perceptions that affect diagnosis and management of an ailment. These perceptions are perceived name and signs & symptoms of the ailment, perception about disease timeline, the perceived causes, perceived consequences of the ailment and the perceived time frame of treatment control. Research studies have reported perceptions on prostate cancer causes and risk factors among men mostly those without PCa. Furthermore, the studies have shown that the perceptions persist even after the diagnosis of prostate cancer (Allen, Kennedy, Wilson-Glover and Gilligan, 2007). Some people perceive PCa to be caused by having multiple sexual partners (Allen *et al*., 2007), although a study in Uganda reported that it is viewed as gonorrhea (Nakandi, Kirabo, Semugabo, Kittengo, Kitayimbwa, Kalungi and Maena, 2013). According to Fitzpatrick, Kirby, Brough and Saggerson (2009) having cellphone in pocket was perceived to enhance the risk of prostate cancer development.

Diverse perceptions of the severity of PCa have been reported and the reported perceptions have affected the approach of men towards PCa diagnosis and management in developing and developed countries. Studies show that in USA, a diagnosis of prostate cancer is perceived as a death sentence and its treatment poses a masculinity threat (Allen *et al*., 2007; Pedersen, Armes, & Ream, 2012). On the

other hand, studies in Uganda report that PCa is perceived not as serious as HIV/AIDS (Nakandi *et al*., 2013). A study conducted among American-African men revealed that the men perceived a diagnosis of prostate cancer as a death sentence and avoided treatment (Cobran *et al*., 2014). The study further revealed that the perceived embarrassment and the fear of a positive diagnosis influenced the health seeking behaviour. Moreover, the study noted that perceptions persist even after the diagnosis of PCa and influence the health seeking behaviour post diagnosis. The findings are supported by (Daher, 2012) who stated that many individuals associate the diagnosis of any cancer with death, and they perceive cancer as a punishment from God. The two studies recommended that cultural myths, perceptions and cancer-related stigma are contributing factors to the problem that need to be urgently addressed because they present significant challenges in the control and management of PCa.

A study conducted in Nigeria by Odedina *et al*., (2011) revealed that most prostate cancer patients presented to the hospital very late, largely because of inadequate knowledge and poor perceptions towards prostate cancer. Moreover, the study recommended that more research needs to be done to find out the true knowledge base and perception of PCa patients towards the diagnosis of prostate cancer. The study noted that as cultures and beliefs vary, so is the knowledge and perception of patients and families towards prostate cancer and by extension, the health seeking behaviour (Odedina *et al*., 2011). According to Cook, Salmon, Holcombe, Cornford, Dunn and Fisher *al.,* (2014) negative perceptions are common, and especially so in patients newly diagnosed with prostate cancer and they are associated with current or later distress. Perceptions (specifically negative perceptions) are associated with concurrent symptoms of anxiety, depression and trauma among patients diagnosed with PCa. In addition, patients make decisions about prostate cancer treatment based on perceptions (Cook *et al*., 2014).

Recommendations by health workers for PCa screening is associated with higher uptake of PCa screening. However, embarrassment, perceived low risk, and fear of cancer diagnosis explain some men's decisions not to undergo screening (James, Wong, Craig, Hanson, Ju, Howard and Tong, 2017). Men often have a fear of losing

their masculinity following a PCa diagnosis and thus, few will accept to go for prostate cancer screening (James *et al*., 2017). Moreover, most men perceive the diagnosis of prostate cancer to be a threat to their manhood compromising their image in the community. Perceptions of cancer-related death is another challenge faced by men as they fear being diagnosed with prostate cancer and dying from the disease (James *et al*., 2017). It is, therefore, essential to understand and address the concerns of men in an effort of facilitating informed choices about prostate cancer screening and subsequent diagnosis all of which influence the health outcomes (James *et al*., 2017). The mortality and morbidity of cancer are significant globally but the myths about the disease and management do not show survival and improvements (James *et al*., 2017).

### 2.5.1 Attitudes towards diagnosis of prostate cancer

Cultural differences affect patients' attitudes about medical care and their ability to understand, manage and cope with the course of an illness, the meaning of a diagnosis and the consequences of medical treatment (Wilkinson, List, Sinner, Dai and Chodak, 2003). Patients and their families bring culture specific ideas and values related to concepts of health and illness, reporting of symptoms, expectations of how health care will be delivered and beliefs concerning medication and treatments. In addition, culturally specific values influence patient roles and expectations, how much information about illness and treatment is desired, how death and dying will be managed and process for decision making (Wilkinson *et al*., 2003). A study conducted in Saudi Arabia concluded that beliefs and attitudes have a great impact, at every stage of the cancer continuum, from prevention and early detection to access and response to treatment, rehabilitation and survivorship/palliative care and end-of-life care. These attitudes depend mainly on level of knowledge and quantity of information provided to the patients and their families (Cobran, Wutoh, Lee, Odedina, Ragin, Aiken and Godley, 2014).

Unfavourable attitudes towards PCa have been reported and may result to diagnosis of cancer in advanced stages thereby causing poor treatment outcomes (Kolahdooz *et al*., 2014). According to Nakandi *et al*., (2013) research studies have indicated unfavourable attitudes towards diagnosis of PCa. In Australia, negative attitudes

towards diagnosis of PCa have been reported and are due to reasons such embarrassment and fear of PCa death. Pedersen, Armes and Ream (2012) indicated that perceived taboos and fear have an impact on the men's willingness to share about prostate cancer with their health care providers. Positive attitudes towards PCa diagnosis have also been established (Hevey, Pertl, Thomas, Maher, Chuinneagain and Craig, 2009). Positive attitudes towards PCa diagnosis have been reported and studies show that they are associated with enhanced education level, income, occupation and age of the patents and families (Wilkinson *et al*., 2003). It's crucial for health care providers to have an awareness to the psychological effect arising from prostate cancer attitudes to those that the disease has affected in one way or the other. This is because, health professionals can positively influence the patient's and family's experiences if they are aware of the patient's attitudes (Kolahdooz *et al*., 2014). Amir *et al*., (2010) indicated that some patients have reported challenges returning to work because of employer's and line manager's attitudes. The researchers furhet indicate that the employers may have fearful attitudes towards prostate cancer employees returning to work (Amir *et al*., 2010)

The diagnosis of prostate has a great impact on those affected by the ailment. Prostate cancer continues to be associated with negative perceptions and is considered by public as the first health priority as compared with other diseases (WHO & International Agency for Research on Cancer, 2008). A study conducted in United Kingdom showed that more than a third of participants mostly feared cancer as compared with other diseases. A person's attitude about PCa can vary but studies show that men with low educational levels and low knowledge levels are likely to have unfavourable attitudes about PCa and its methods of prevention (Keeney *et al.*, 2013). Attitudes such as cancer is fatal are associated with unfavourable attitudes towards early diagnosis and PCa prevention. Such attitudes could be held strongly amongst various cultural groups (Beeken *et al.*, 2011).

### 2.5.2 Healthcare professional's attitudes towards Prostate Cancer

The health provider's attitudes mirror the attitudes of the public at large. It has been indicated that nurses perceive prostate cancer as a terrifying ailment, dreaded disease which has little effectiveness of management (Box and Anderson, 2007). A study on

oncology healthcare professional groups in Northern Ireland found unfavourable and negative attitudes about cancer were present irrespective of the profession, clinical experience and gender of the respondents (Kearney *et al.,* 2003). Health care provider's attitudes and beliefs have an impact in practice because unfavourable attitudes could be conveyed to the families and patients unconsciously. The researchers recommended that there is need for healthcare providers to appreciate that patients and families affected by PCa have varying knowledge, fears, misperceptions & and perceptions that requires assessments that are individual and specific management tailored to meet patients needs adequately (Kearney *et al.*, 2003).

The importance of health care providers being mindful of their attitudes cannot be underestimated. This is because health professional's negative attitudes can provoke psychological distress in patients and families. Health providers can influence patients and families positively through supporting patients individual concern, explaining the expected impact of PCa treatment and dispelling patients and families misunderstanding (Kearney *et al.,* 2003). Health care provider's communication skills can determine whether men with prostate cancer symptoms seek treatment. Studies have suggested that better communication between health care providers and patients improves men's understanding of prostate cancer (Kearney *et al.,* 2003).

Studies show that when health care providers are aware of the possible psychological distress, they can adequately prepare and sensitively respond to the emotional reactions of the people affected by the diagnosis of prostate cancer. A study by Stajdunar, MCguinness Thorne, and Kim-sing (2010) reported that appreciating worries associated with cancer of the prostate is beneficial to patients. Moreover, adequate and effective communication facilitates patient's expression of fear which in itself is supportive. To ensure people change behaviour, their cultural beliefs and the various factors influencing these beliefs need to be understood (Schernhammer *et al*., 2010). Unfavourable and negative attitudes held by health care providers can cause communication barriers and impair quality care. Thus, health care providers taking care of cancer patients should evaluate and deal with their attitudes because they may convey negative non-verbal cues (Purandare, 1997).

## 2.6 Knowledge about prostate cancer

Inadequate knowledge levels about prostate cancer and other prostate-related problems has been identified as a contributing factor to low survival and higher mortality rates of PCa patients (Kabore, Kambou, Zango and Ouedraogo, 2013). Oranusi, Mbieri and Nwofor (2012) report in a study done in Nigeria that majority of men who were public servants could identify symptoms of prostate cancer correctly and difficult in urination was the commonly identified symptom. Moreover, the respondents were able to correctly identify the predisposing factors of cancer of the prostate. Orarusi *et al*., (2012) further report that the increased knowledge level was found among respondents who were high risk, especially those who had a familial predisposition of prostate cancer. Comier *et al*., (2002), reported that increasing age increases knowledge on prostate cancer because the researchers founder aged men had more knowledge about prostate cancer when compare with younger men. The findings are supported by Wilkinson, Sinner, List, Chodak and Dai (2003) who found high levels of knowledge in patients with high education levels, high income and older people.

In the United States of America, past studies have shown there's a change in pattern of screening methods for cancer because of varying gender, age, ethnic and racial background (Breen, Brown, Wagener, Davis, & Ballard-Barbash, 2001). Moreover, these screening methods were poorly utilized by groups whose education and knowledge levels were low. A related study in the USA, reported that men who were exposed to information on prostate cancer participated more in screening for prostate cancer (Nivens, Weinrich, Pweinrich, & Herman, 2001).

Oladimeji *et al*., (2010), in a study done in Nigeria reported that most of older men were aware of prostate cancer but they had low levels on prostate cancer causes, management and ways of prevention. In addition, the respondents had low perception on screening uptake and risk of disease development. The researchers further report that the men had willingness to be screened for prostate cancer though they had low risk perception. In Senegal, similar research studies have also reported reduced knowledge towards cancer of the prostate (Gueye *et al*., 2003). Nonetheless, a study done in urban native Nigeria in a population with low education, reported

that majority of the respondents were not aware of PCa (Ajape *et al*., 2009). Additional previous studies involving Indian patients showed that majority of the respondents were not aware of the options for treatment and the possible outcomes (Xu, Dailey, Neale, Schwartz & Eggly, 2012). The researchers concluded that promotion of information dissemination on cancer of the prostate can improve patients and family's perception on the ailment, which will subsequently lead to increased screening uptake for early detection.

### 2.7 Outcome of prostate cancer diagnosis

The outcome of prostate cancer and its treatment extends to the whole family members, who not only have their own worries and fears to deal with but are also expected to take care of the patient. Taking care for a patient with prostate cancer can notably impact the mental health, well-being, relationships, working and social lives of families (Cardy, 2006). Fear result from beliefs around death and dying, perception of limited treatment effectiveness, disease symptoms and disfigurement that may arise from various treatment modalities. Bladder difficulties, sexual dysfunction and bowel problems have been reported as major complains experienced by prostate cancer patients (Cardy, 2006). Physical, psychological and emotional sequelae following prostate cancer diagnosis may result from the disease itself or treatments (Wilt TJ *et al*., 2008). Specific physical consequences vary with the type of treatment and can affect urinary, bowel and hormone-related functioning.

General perceptions on prostate cancer diagnosis may predict which patients have worse or better physical and psychological adjustment during the course of treatment (Mc Pherson *et al*., 2016). When stress is perceived as a threat, it elicits negative emotional states and maladaptive coping but when stress is perceived as a challenge, it will elicit favourable emotional reactions and enhanced confidence in coping (Mc Pherson *et al*., 2016). Cancer of the prostate which is a chronic ailment, threatens the wellbeing and health of a notable aged men in the community. The disease burden & poor outcome associated with prostate cancer is highest in populations that have less educated and poor. Moreover, these populations have elevated likelihood of contracting the disease, suffering from the disease and subsequent death (American Cancer Society, 2002). Poorer, less education levels

and populations considered minor have decreased levels of knowledge about PCa before the diagnosis and after the diagnosis (Eton and Lepore, 2002). Outcomes arising from the diagnosis of prostate cancer vary and depend largely on the disease stage at detection, method of management and patient's and family's perceptions. Often embarrassing consequences of treatment are urinary and bowel incontinence and sexual dysfunction (American Cancer Society, 2002).

According to American Cancer Society (2014) prostate cancer is fraught with both physical and psychological symptomatology, which include depression, anxiety, stress, fatigue, pain, impotence, erectile dysfunction, sexual issues and incontinence. According to Pasquini & Biondi (2007), being told that one has prostate cancer is traumatic experience that makes the patient perceive death, and the possibility of invasive treatments, body image changes, family role changes, workplace changes and fraught side effects. Moreover, PCa impacts not only the patient but also his family and friends. A common concern of patients and their significant others following a PCa diagnosis is the potential impact on their relationship where treatment therapies lead to sexual side effects that affect the intimacy between couples (Resnick, Koyama, Fan, Albertsen, Goodman, Hamilton & Penson, 2013).

The effect of cancer of the prostate and the management involved on patients and family's is multidimensional. This means that the patients' and family's psychological, spiritual, social and physical dimensions are affected (Pasquini & Biondi, 2007). In addition, patients and families may have fear, depression and anxiety because of attitudes that are negative towards prostate cancer (Pasquini & Biondi, 2007).

Anxiety in patients and families causes a notable decrease in the patient's emotional health, psychological health and the quality of life (National Institute for health and Care Excellence (NICE), 2011). For instance, patients who have anxiety express more fatigue levels, more management side effects nausea & vomiting and need more care and support (Brown & Kroenke, 2009). Moreover, anxious patients are more predisposed to development of psychiatric conditions e.g. depression (NICE, 2011). A study done by Edwards and Clarke (2004), reported that depression levels

and anxiety levels in both patients and families were similar. This implied that prostate cancer outcomes are not only in the patients but also the families. Other studies have found that PCa impacts relationships and functioning of families in various ways such as intimacy, finances, employment issues, changes of roles and emotional health (International Organization for Migration (IOM), 2008).

Depression has also been demonstrated to be an outcome of PCa diagnosis amongst patients and families. In addition, studies show over fifty percent of patients and their carers experience depression at some point in their disease course (Pasquini & Biondi, 2007). Moreover, medical and personal factors are responsible for development of depression in these patients. Personal factors include social support, coping ability, religious beliefs, perceptions and personality traits. In addition, medical factors include PCa stage, prognosis, treatments undertaken and follow up (Pasquini & Biondi, 2007). Prostate cancer affects negatively a patient's sexuality and typically evokes intense emotions of isolation, uncertainty fear and depression. Men who are fortunate enough to discover prostate cancer early, when it is confined to the prostate gland, are candidates for curative treatment. However, the tradeoffs for cure are common and long-standing treatment side effects include urinary, bowel and sexual dysfunction, all of which affect a man's sense of self-worth and masculinity and contribute to depressive symptoms (Pasquini & Biondi, 2007).

Edwards and Clarke (2004) state that psychological factors such as cognitive appraisals (e.g., perceptions of stress) are important to outcomes following PCa diagnosis. Moreover, cultural beliefs and values are important to men's reactions and outcomes to PCa diagnosis. The social-demographics of a patient and family play a vital role in determining when they seek care, if they can afford that care, what the possible outcomes are and whether they will seek care at all (Edwards & Clarke, 2004). In Northern Ireland, psychological distress in patients diagnosed with prostate cancer was shown to be predicted by cancer-related symptoms, including urinary incontinence, bowel incontinence, fatigue and insomnia (Sharp L *et al*., 2016).

Fatigue is a common outcome of PCa diagnosis amongst patients and families. It sometimes occurs accompanied by sleep disturbances, pain, depression, nausea and difficult concentrating (Paryne, Piper, Rabinowitz and Zimmerman, 2006). Fatigue especially during active treatment makes the performance of roles not possible and this becomes a notable stressor to the patients and families (Poirier, 2006). Health beliefs and perceptions about prostate cancer have been reported as contributing factors to fatigue (Thompson, 2007). Moreover, chemotherapy and radiation therapy which are used to manage PCa, have been associated with contributing to fatigue in PCa patients.

Studies show that prostate cancer diagnosis causes a significant distress. However, a growing body of literature is suggesting that there could be helpful effects arising from the illness. Harden *et al*., (2006) report that illness is a stressful occurrence and it can lead to personal growth and development through enhanced self-understanding and improved value of having friends and family. Some families have reported changes that are positive because of appreciating life more, improved health seeking behaviour, having closer family relationships and recognizing positive strengths and qualities (Harden *et al*., 2006).

### 2.8 Patients Perceptions and Health seeking Behaviours

Individual's behaviour is determined by perceived threat that a health problem poses, benefits that result from avoiding the threat and various factors influencing the decision to act. Studies have shown that health seeking behaviours are determined by action cues, perceived severity, knowledge and attitudes towards prostate cancer diagnosis (Thompson, 2007). Behavioural factors determine the health of a population and it is widely accepted that prostate cancer associated perceptions should be addressed in the fight and management of the disease.

A valuable piece of literature missing is the role that perceptions, myths, taboos, and values have on the health behaviours and health outcomes of prostate cancer upon diagnosis of the disease (Thompson, 2007). Reports show that the key elements associated with culture and ethnicity shape perceptions related to health, attitudes and health behaviours (Cowan, Meiser, Giles, Lindeman, & Gaff, 2008). Cultures

are rooted on the peoples' beliefs, values & behaviours of the specific population. These values and beliefs include religion & spiritualism, cancer fatalism, temporal orientation and acculturation (Thompson, 2007). PCa fatalism is a person's belief that once an individual is diagnosed with cancer of the prostate, death is bound to happen. Fatalism perceptions have been reported to affect prostate cancer. The level and process of acculturation differs from each individual and are likely to influence prostate cancer health behaviours (Cowan, Meiser, Giles, Lindeman, & Gaff, 2008).

Knowing the patient's and family's perceptions helps improve the understanding of prostate cancer control & prevention behaviours and subsequently improve the designing of interventions that are successful. Wu, Mohamed, Winkel & Diefenbach (2013) report that when a prostate cancer patient together with their family perceive that prostate cancer is treatable and the treatment will take a short duration of time, the patient and the family is more pro-active in seeking treatment as well as engaging in family activities. It is therefore vital to appreciate the diversity of culture and establish the perceptions specific to each ethnic population in relation to health and care seeking behaviours after a prostate cancer diagnosis. Cultural beliefs and patient's values concerning PCa influence their quality of life following a prostate cancer diagnosis.

There is growing acknowledgement that one of the biggest challenges faced by health care providers is modifying patient perceptions of illness and changing behaviour consistent with the illness management education offered. Evidence supports improved patient outcomes and health seeking behaviour when interventions target perceptions in patients with chronic low back pain and in patients with coronary artery disease. In addition, specifically the number and perceived severity of symptoms and the impact on functional status, is associated with increased difficulty performing activities of daily living (Levy & Cartwright, 2015). In a study by Pradhan *et al.*, (2018), most of the study subjects were diagnosed at stage II and III. Diagnosis of cancer at advanced stages was attributed to the fact that there was inadequate awareness and inappropriate health seeking behaviour among general population.

A study on health seeking behaviour among cancer patients attending ocean road cancer institute in Tanzania showed that 68.2% of the patients presented themselves when the disease was already in late stage of growth (Kombe *et al*., 2007). Men were observed to have a poor health seeking behaviour after diagnosis with prostate cancer according to Hyde *et al*., (2017).

General perceptions of prostate cancer may predict which individuals have better or worse psychological and physical adjustment during the course of cancer management. A focus on perceived stress, therefore, may be of greater importance to adaptation than the actual disease stressors themselves. Perceived stress is based on the relationship between the person and the environment and emphasizes appraisal of stress. The perception of stress as a threat elicits negative emotional states and maladaptive coping, whereas the perception of stress as a challenge is associated with favorable emotional reactions and greater confidence in coping (Mc Pherson *et al*., 2016). In West Africa, research shows that very little research that examines perceptions and attitudes towards diagnosis of prostate cancer. However, the studies acknowledge that understanding perceptions of prostate cancer diagnosis and how it translates to health seeking behavior and treatment is important for physicians and health providers as this information clarifies existing knowledge and provides valuable information for the design of health programs to reduce the disease burden (Yeboah-Asiamah, Yirenya-Tawiah, Baafi and Ackumey, 2016).

## 2.9 Conceptual Framework

The framework shows various association among variables (figure 1). The dependent variable is the patients' health seeking behaviour following the diagnosis of prostate cancer. Independent variables include the socio-demographic factors, the level of knowledge on prostate cancer patients' & families' attitudes and perceptions towards prostate cancer diagnosis.

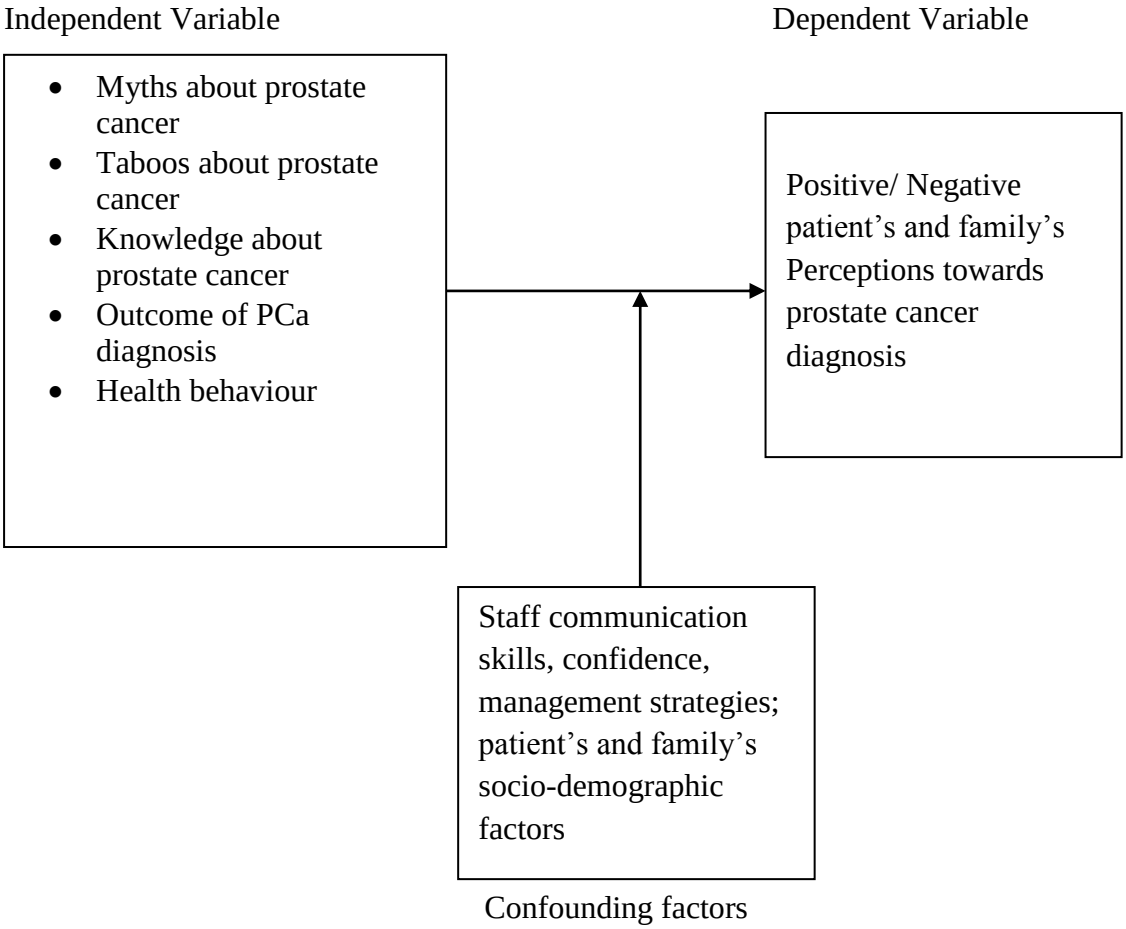


Figure 1: Conceptual Framework

Prior studies done on patient's and family's perceptions towards diagnosis of prostate cancer have shown that patients suffer disproportionately in large part due to the varying perceptions towards prostate cancer. Perceptions and values are increasingly being recognized as crucial determinants of not only of prostate cancer control behaviours but also part of the psychological and behavioral issues towards diagnosis of cancer and treatment (Daher, 2012). However, the perceptions need to be recognized because they vary from one culture to another. Prior studies have shown that perceptions are influenced by patient's and family's knowledge on

prostate cancer and also the perceived outcome of the prostate cancer diagnosis. Other factors that influence perceptions include myths, misconceptions, attitude & taboos and as the cultures vary, so do these factors (Daher, 2012).

Wu *et al*., (2013) state that perceptions play an important role in patient outcomes & health seeking behaviour and that intervention to change these perceptions could potentially improve patient's well-being and outcomes. This study thus sought to explore the patient's and family's perceptions towards diagnosis of prostate cancer because reviewed literature shows that perceptions are important in patient management.

# CHAPTER THREE
# METHODOLOGY

## 3.1 Introduction

Research methodology describes the specific procedures used by the researcher to identify, process and analyze data about the study topic. This chapter describes the methods used to conduct the study. It includes the study area, research design, study population, sampling procedure, eligibility criteria, data collection procedure, data collection instruments and analysis, pretesting, reliability and validity and ethical considerations.

## 3.2 Study area

Study area is a physical, social or cultural site where the study was conducted.

This study was conducted in Tharaka Nithi County. The county has three major hospitals (Chuka level four hospital, Magutuni sub-county hospital and Tharaka sub-county hospital) and one referral mission hospital (Chogoria Mission Hospital) where patients diagnosed with prostate are followed. The four hospitals acted as strata. Chogoria mission hospital is located in Mwimbi sub-county, approximately one kilometer from the Nairobi Meru highway. It has a bed capacity of 250 patients and it has a fully functional palliative clinic. Chuka level four hospitals is located in Chuka town and it has a bed capacity of approximately 100 patients. The hospital is the largest county hospital in Tharaka Nithi County. Magutuni sub-county hospital is located in Mwimbi sub-county and it has a bed capacity of 83 patients. Tharaka sub-county hospital is located in Tharaka south sub-county and it has a bed capacity of 70 patients. In the month of September, October and November 2018 the four hospitals had recorded an average of 150 patients.

## 3.3 Research design

The research design is the overall strategy that the researcher choses to integrate the various components of the research in a coherent and logical way thereby ensuring that the research problem is effectively addressed. The research design constituted the blue print for the data collection, measurement and analysis. A descriptive research design is used to describe characteristics of a given population and doesn't answer questions about how, when and why the characteristics occurred (Eerl, 2013).

The study design was descriptive cross-sectional, which enabled the researcher to determine the patients' and family's perceptions towards diagnosis of prostate cancer. The design was suitable because of the qualitative nature of this study. Moreover, this research study was a social science type of research and thereby study questions needed descriptive answers in order to be answered.

### 3.4 Population

Population is a group of individuals/observations with characteristics which are similar and are of interest to the researcher. The target population comprised of patient's diagnosed of prostate cancer within Tharaka Nithi County. Also, one family member of all the prostate cancer patients within Tharaka Nithi County. A review of the records in the four purposively selected hospitals showed the accessible population was as follows;

Table 1: Number of patients attended to in one month.

| Hospital | No. of PCa patients attended to in one month |
|---|---|
| PCEA Chogoria mission hospital | 51 |
| Magutuni sub-county hospital | 32 |
| Chuka county referral hospital | 37 |
| Tharaka sub-county hospital | 30 |
| Total | 150 |

Source: Hospital records (2018)

One family member of each prostate cancer patient, who were purposefully selected, comprised of the family's population.

### 3.5 Study Variables

#### 3.5.1 Dependent Variable

The dependent variable of this study was negative and positive perceptions towards diagnosis of prostate cancer**.**

#### 3.5.2 Independent Variables

The independent variables of this study were knowledge towards prostate cancer, outcome of prostate cancer diagnosis and health seeking behaviour following

prostate cancer diagnosis. The independent variables were measured on how they influenced the dependent variable.

### 3.6 Sampling

A sample refers to a lesser group of individuals or observations the researcher uses to collect data from and which is representative of the whole population. On the other hand, sampling refers to the process used by the researcher to identify and select a group of observations or individuals for the research study in a way that the selected individuals represent the population from which they were selected.

#### 3.6.1 Sample size determination

The sample size was determined using fisher's formula (fisher *et al*., 1998) as follows.

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

Where,

n represents the desired sample size (if the target population is greater than 10,000)

Z represents a corresponding confidence level value (i.e. 1.96 for 95% confidence)

d is the margin error (i.e. 0.05=5%)

P is the value estimated for the proportion of a sample that has the condition of interest (no reasonable estimate a default of 50% or 0.5 is used).

$$n = \frac{1.96^2 0.5(1-0.5)}{0.05^2}$$

n =384.16

n= 384

Since the target population is less than 10,000, the sample size was adjusted using the Yamane formula, (1967) with a sample of 150 as seen on the monthly number.

$$nf = \frac{n}{1} + (\frac{n}{N}$$

Where,

*nf*- desired sample

n- Calculated sample

N- Estimate of population of study

Hence $nf = \frac{384}{1} + (\frac{384}{150})$

*nf* = 107.8651685

*nf* = 108

### 3.6.2 Sampling Procedure

The researcher used purposive sampling method. The researcher went to the four purposively selected hospitals (Chogoria mission hospital, Chuka level four hospital, Magutuni sub-county hospital and Tharaka sub-county hospital) and identified patients diagnosed with prostate cancer and interviewed them. This method was applicable in this study because of the sensitivity of the information required, the qualitative nature of the information and the fact that respondents are men whose problem is a very sensitive organ. For the families, the patient purposefully referred the researcher to the appropriate family member who was also interviewed. However, during data collection there were five patients who came to the hospital alone and therefore the number of patients exceeded that of families by five.

## 3.7 Eligibility Criteria

Eligibility criteria depends on the characteristics that are mandatory to the repondentd in order to be included in the study research. Patients included to the sample were prostate cancer patients aged 18 years and above, and those who were willing to participate. Those excluded were patients diagnosed of prostate cancer but not willing to participate in the study. Families' included in the study were families with a prostate cancer patient and those who were willing to participate.

## 3.8 Data Collection Procedure

This is the step by step process of acquiring data on the variables of study in a coordinated manner to enable answering of research questions by the researcher. Data collection was performed by the researcher and one research assistant for a period of two months in the months of March and April, 2019. During this period,

the researcher and the research assistant spent one month in each hospital where the required number of patients and families were interviewed.

### 3.8.1 Data Collection Instruments

Data collection was carried out by the researcher and an assistant using interview schedules and focus group discussions. The interview schedules comprised of four sections. Section A gathered social demographic data, section B gathered data on knowledge, section C gathered data on the outcome of prostate cancer diagnosis and section D gathered data on health seeking behaviour. There was an interview schedule for the patients (Appendix 1) and another one for the families (Appendix 2).

### 3.8.2 Pre-testing

Pre-testing was done and enabled the researcher determine practicability and feasibility of the selected research design. Pre-testing is the process of trying out techniques for research and practically of methods to establish their applicability and if necessary, make appropriate adjustments. Pre-testing was done at Embu teaching and Referral hospital in Embu county where 10 prostate cancer patients attending the palliative clinic and ten families were interviewed. This ensured reliability and sustainability of the interview schedule. Findings from the pre-test helped inform the final interview schedule.

### 3.8.3 Validity and Reliability

Validity and reliability were determined to establish accuracy & repeatability of research collection tools. An instrument that is reliable is one that produces similar information when applied to gather information from a sample that has been randomly selected (Eerl, 2013). This enables showing of the extent to which the content of the instrument would be reliable by giving similar responses each time the instrument gets administered. To establish reliability, pre-testing of the instruments was done and to determine validity, a thorough literature review was done to compare and contrast the instruments with research findings from similar instruments in other studies. Moreover, consultations with authority in oncology clinics was done to establish completeness of the tools.

### 3.9 Data Analysis and Presentation

In order to explain and describe the information in terms that were meaningful, it was subjected to treatment statistically. The quantitative infromation was entered into computer and analyzed for significance at $p<0.05$ using Statistical Package for Social Sciences (SPSS) (version 23.0). Frequencies, percentages and mean were used. Chi-square test was used for significant association between variables. Pie charts and tables was used for data presentations.

### 3.10 Ethical Considerations

The researcher sought permission to carry out this research study from National Commission for Science, Technology and Innovation (NACOSTI) through the Chuka University Ethics and Research Committee for review and approval. Approval was also sought from director clinical services from Chogoria mission hospital and Tharaka Nithi County director of medical services for Magutuni sub-county hospital, Chuka county hospital and Tharaka sub-county hospital. Respondents were informed to fill an informed consent form as a proof of their acceptance and availability to participate in this research study. After the consent was obtained, the researcher informed the respondents that participation was voluntary, they were free to express their dissatisfaction anytime and they could withdraw from the research study when felt to do so. This was done to ensure that the information obtained was credible. Confidentiality of the participants was assured by asking them to maintain their anonymity by telling them not to write their name on the interview schedules.

# CHAPTER FOUR

# RESULTS

## 4.1 Introduction

The researcher tried to interpret the results within the conceptual framework, drew conclusions based on the results and discussed the descriptive findings. This chapter is a presentation of results of the analyzed data. The results interact with the available literature. The chapter contains a section of results on social demographic factors, knowledge, outcome and health seeking behaviour. The data was analyzed using frequencies and percentages and presented in tables, charts and narratives. Qualitative data was put into groups and themes were generated analyzed as per the objectives of study.

## 4.2 Patients' Social Demographic Information

This research study showed that patient's social-demographic characteristics have a role in patients' and families' perceptions towards diagnosis of prostate cancer.

### 4.2.1 Age of the Patients

Results from this study revealed that age group of 60-70 years is most prone to prostate cancer (30) followed by 70-80 at (23) and 50-60 at (7). The age group of 80-90 had (6), above 90 had (3) and 30-40 had (1) as shown in the figure 2.

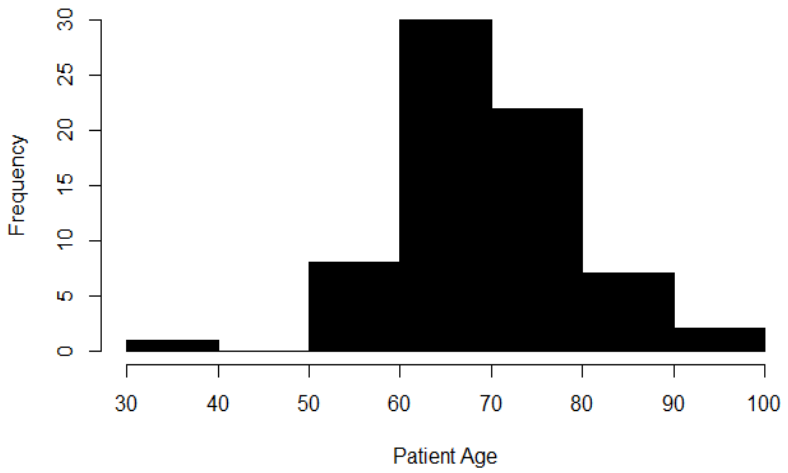


Figure 2: Histogram of Patients' age

### 4.2.2 Marital status

The results in this study showed that the highest number of prostate cancer patients were the married people at (82.29%) followed by widowed (7.14%), single (4.29%) separated (2.86%) and those who were divorced at (1.43%) as shown in table two.

### 4.2.3 Highest Level of Education

The results in table 2 shows that majority (35.17%) of the patients had attained secondary education followed by primary (31.43%), tertiary (20%) and those of have never schooled (12.86%).

### 4.2.4 Religion

The results in table 2 shows that all the prostate cancer patients in this study were Christians (100%). This is because Tharaka Nithi County is predominantly inhabited by Christians who practice Christianity.

### 4.2.5 Patients' Carer

Majority (41.23%) of the patients were being taken care by their wives followed by those cared by their daughters (27.14%), sons (25.71%) and lastly by brothers (5.71%). This is shown in table two.

### 4.2.6 Occupation

More patients were in informal employment (74.29%) as compared to those in formal employment (25.71%) as shown in table two.

### 4.2.7 Family history of Prostate cancer

Most of the patients had no history of prostate cancer in the family (74.29%) as compared to those who had history of prostate cancer in the family (25.71%) as shown in table two.

Table 2: Patients' Social demographic information

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Marital status | Divorced | 1 | 1.43 |
| | Married | 59 | 84.29 |
| | Separated | 2 | 2.86 |
| | Single | 3 | 4.29 |
| | Widowed | 5 | 7.14 |
| Occupation | Formal | 18 | 25.71 |
| | Informal | 52 | 74.29 |
| Education | None | 9 | 12.86 |
| | Primary | 22 | 31.43 |
| | Secondary | 25 | 35.71 |
| | Tertiary | 14 | 20 |
| Religion | Christian | 70 | 100 |
| History of prostate cancer in the family | No | 52 | 74.29 |
| | Yes | 18 | 25.71 |
| Person who takes care of the respondent | Brother | 4 | 5.71 |
| | Daughter | 19 | 27.14 |
| | Son | 18 | 25.71 |
| | Wife | 29 | 41.43 |

### 4.2.8 Body Mass Index (BMI)

The results revealed that majority of the prostate cancer patients in this study had a body mass index of between (20 – 25) kg/m$^2$ at (40) followed by a BMI of 25-30 at (13), 15-20 (10), 10-15 (6) and 35-40 (1) as shown in figure 3.

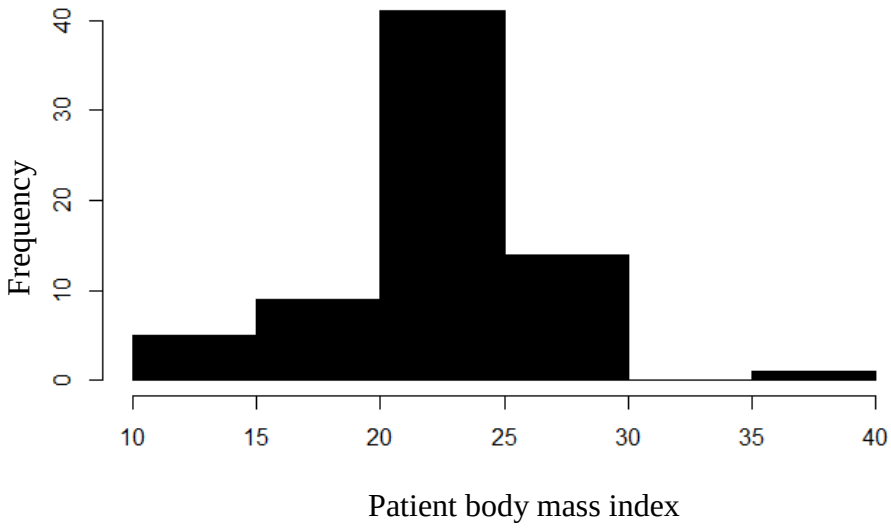


Figure 3: Patients Body Mass Index

### 4.2.9 Co-morbidity

The results show that majority of the patients suffered from hypertension (50%) followed by none (28.57%), diabetes mellitus (8.57%), others (7.14%) and HIV/AIDS (5.71%) as shown in the table 3.

Table 3: Co-morbidity

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Other illness of the respondent | Diabetes mellitus | 6 | 8.57 |
| | HIV/aids | 4 | 5.71 |
| | Hypertension | 35 | 50 |
| | None | 20 | 28.57 |
| | Others | 5 | 7.14 |
| Total | | 70 | 100 |

### 4.2.10 Variable analysis

The results show that the patients had an average number of 5 children and average weight, height and BMI of 63.3kg, 169.11cm and 22.29 respectively as shown in Table 4.

Table 4: Variable analysis for prostate cancer patients

| Variable | Mean | Standard Deviation | Median | Lower (95% CI) | Upper(95 % CI) |
|---|---|---|---|---|---|
| Age | 69.76 | 9.47 | 69.5 | 67.54 | 71.98 |
| Children | 5.17 | 2.04 | 5 | 4.69 | 5.65 |
| Duration | 2.79 | 1.86 | 2 | 2.35 | 3.22 |
| Weight | 63.3 | 12.81 | 61 | 60.3 | 66.3 |
| Height | 169.11 | 11.63 | 168 | 166.38 | 171.83 |
| BMI | 22.29 | 3.99 | 22.48 | 21.36 | 23.23 |

## 4.3 Patients' Knowledge in regard to Prostate Cancer

This study sought to investigate the patients' knowledge level towards prostate cancer because knowledge influences the perceptions.

### 4.3.1 Causes of Prostate Cancer

Majority of the patients responded that prostate cancer is caused by genetics (60%) followed by witchcraft (21.43%), curse (8.57%), others (7.14%) and demons (2.18%) as shown in the figure 4.

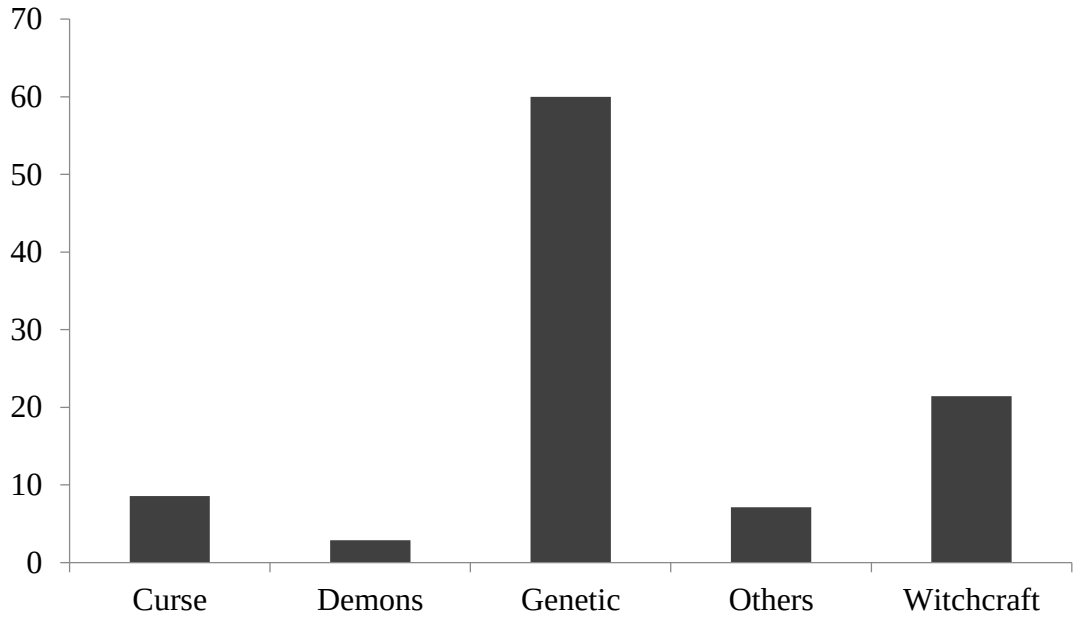


Figure 4: Patients' knowledge on the causes of prostate cancer

### 4.3.2 People who should treat Patients

Most of the patients responded that prostate cancer patients should be treated by medical personnel (75.71%) followed by religious people (21.43%), herbal practitioners (1.43%) and witchdoctors (1.43%) as shown in the Figure 5.


Figure 5: People who should treat patients

### 4.3.3 Knowledge on Prostate Cancer symptoms

The patients were asked if they knew the symptoms of prostate cancer and majority of them didn't (55.7%). Those who knew the symptoms were the minority at (44.3%) as shown in figure 6. Moreover, when asked to mention the symptoms, majority indicated difficult in urination.

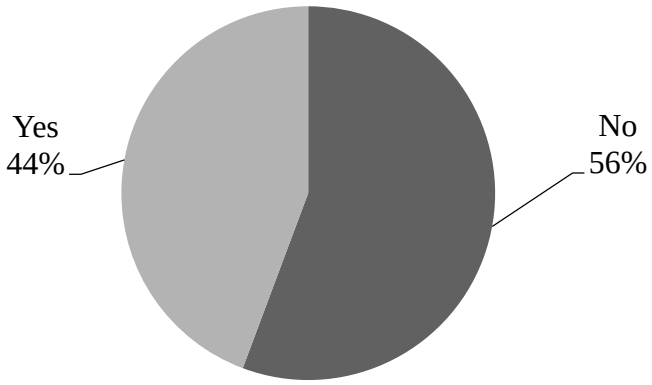


Figure 6: Knowledge on Prostate Cancer symptoms

### 4.3.4 Heard of Prostate Cancer before diagnosis

The patients were asked if they have ever heard of prostate cancer before diagnosis and majority have never heard (58.6%). The minority had heard at (41.4%) as shown in figure 7.

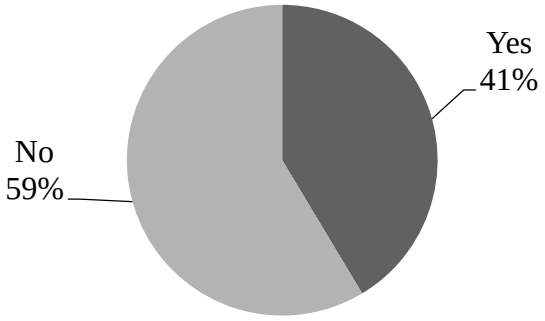


Figure 7: Heard of Prostate Cancer before diagnosis

### 4.4 Families' Knowledge in regard to Prostate Cancer

This study investigated the families' knowledge in regard to prostate cancer because the families are the patients care givers and their knowledge determines the patients' outcomes and the health seeking behaviour.

#### 4.4.1 Causes of Prostate Cancer

The results in figure 8 below shows that majority of the families said that prostate cancer is caused by genetics (50.77%) followed by witchcraft (26.15%) then curse (7.69%), bad omen (6.15%) and others (4.62%).

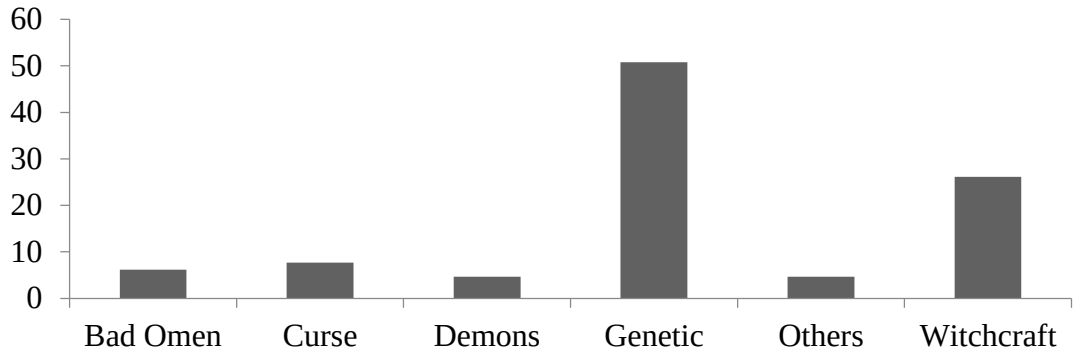


Figure 8: Causes of Prostate Cancer

#### 4.4.2 People who should treat Patients

Most of the families responded that prostate cancer patients should be treated by medical personnel (84.62%) followed by religious people (12.31%), herbal practitioners (1.54%) and witchdoctors (1.54%) as shown in the figure 9.

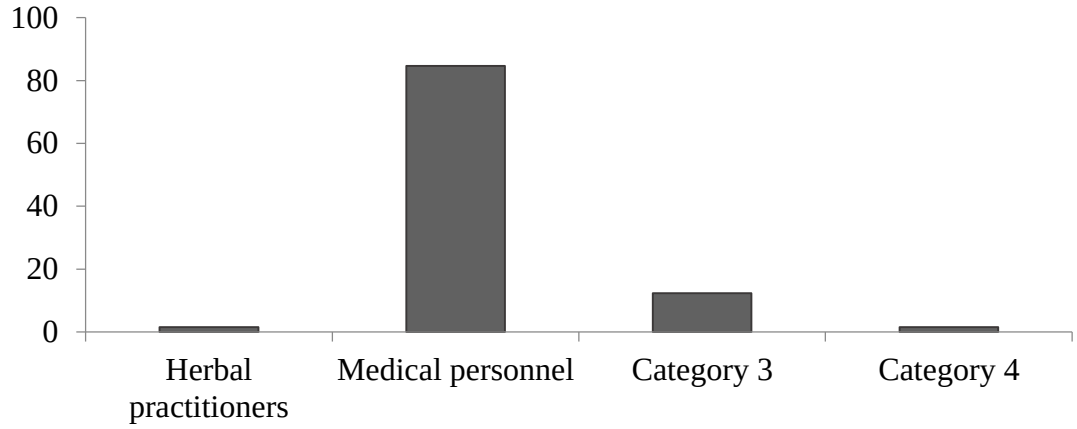


Figure 9: People who should treat patients

### 4.4.3 Knowledge of Prostate Cancer symptoms

The families were asked if they knew the symptoms of prostate cancer and majority of them didn't (81.5%). Those who knew the symptoms were the minority (18.5%) as shown in figure 10. Also, as it was the case with the patients', majority indicated difficult in urination when asked to mention the symptoms they knew.

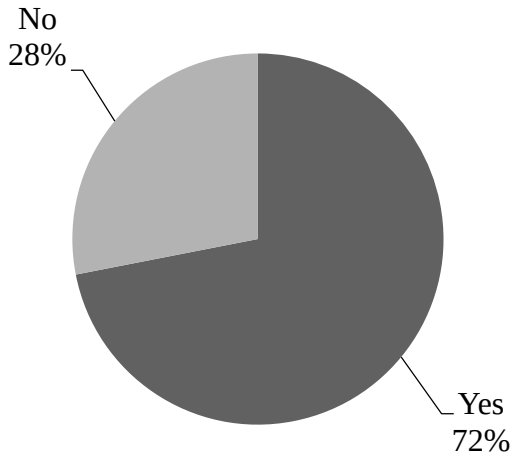


Figure 10: Knowledge of Prostate Cancer symptoms

### 4.4.4 Heard of Prostate Cancer before diagnosis

The families were asked if they have ever heard of prostate cancer before the diagnosis of their relative and majority said yes (61.5%). The minority had never heard and they said no (38.5%) as shown in figure 11.

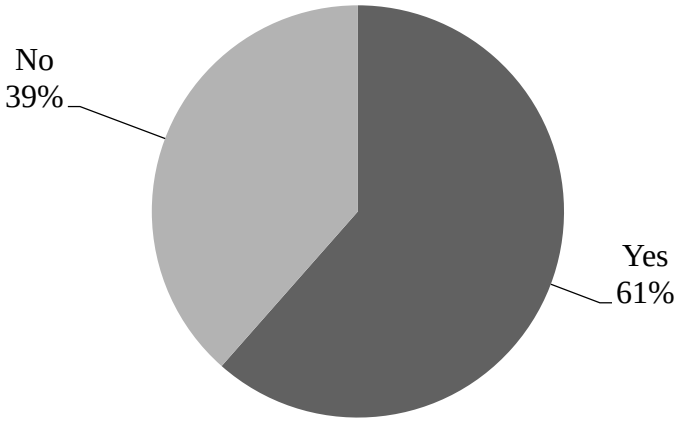


Figure 11: Heard of Prostate Cancer before diagnosis of relative

### 4.4.5 Understanding of Treatment

The results in figure 12 shows that majority of the families understood the treatments their relatives were receiving (53.8%). Minority (46.1%) did not understand the treatment.

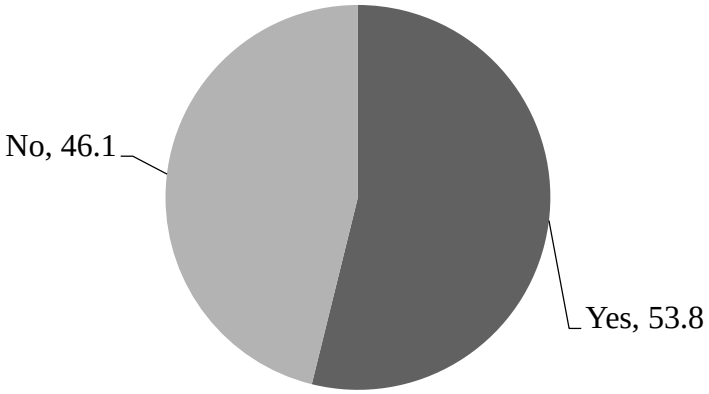


Figure 12: Understanding of Treatment

### 4.5 Association between Education level and Knowledge on Prostate Cancer

Association between education level for both the patients and their relatives with knowledge on prostate cancer was analysed inferentially using chi-square tests. The choice of chi-square test was justified by that, education and knowledge on prostate cancer were both categorical variables. The results indicated that there was association between level of education of both the patients and their relatives with knowledge on prostate cancer (table 5; table 6).

For the family's education level versus knowledge on prostate cancer, the hypothesis tested was;

$H_0$ : Families' Education level and knowledge on prostate cancer are independent.

$H_1$ : There is an association between family's education level and knowledge on prostate cancer.

From the analysis $X^2(3) = 28.539, p\ value \leq 0.001$, (table 5). Since p value was less than level of significance, the null hypothesis (that education level of a family and knowledge on prostate cancer were independent) was rejected. The test showed

that there was an association between families' education level and the much they knew about prostate cancer.

For the patient's education level versus knowledge on prostate cancer, the hypothesis tested was;

$H_0$ : Patient's Education level and Knowledge on prostate cancer are independent.

$H_1$ : There is an association between Patient's Education and knowledge on prostate cancer.

From the results, $X^2(3) = 10.469, p\ value \leq 0.001$ (table 6). Since p value was less than the level of significance, the null hypothesis (that education level of a prostate cancer patient and knowledge on prostate cancer were independent) was rejected. The test showed that there is association between education level of a prostate cancer patient and knowledge on prostate cancer.

Table 5: Chi-square test for family's education level and knowledge on prostate cancer

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 28.539[a] | 3 | .000 |
| Likelihood Ratio | 31.464 | 3 | .000 |
| Linear-by-Linear Association | 25.121 | 1 | .000 |
| N of Valid Cases | 65 | | |

Table 6: Chi-square test for patient's education level and knowledge on prostate cancer

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10.469[a] | 3 | .015 |
| Likelihood Ratio | 10.698 | 3 | .013 |
| Linear-by-Linear Association | 7.560 | 1 | .006 |
| N of Valid Cases | 70 | | |

### 4.5.1 Association between History of Prostate Cancer in the family and the Perceived Causes of Prostate Cancer

It was important to find out whether individuals who came from a family which had prostate cancer history had more knowledge on the causes of prostate cancer as compared to those who came from families with no prostate cancer history. This was investigated using chi-square test since history was a categorical variable and the

causes of prostate cancer were also categorical. The results indicated that history of prostate cancer in family had no association with the knowledge on causes of prostate cancer (table 7). This was tested based on the following hypothesis;

$H_0$ : History of prostate cancer in the family and the knowledge level on prostate cancer causes are independent

$H_1$ : History of prostate cancer in the family is associated with the knowledge level on prostate cancer causes.

From the results; $X^2(4) = 2.792, p\ value = 0.593$ (table 7). Since p value was greater than level of significance the null hypothesis was not rejected. Thus, having a history of prostate cancer in the family and having knowledge on the perceived causes of prostate cancer were independent.

Table 7: Chi-square test for history of Prostate Cancer in the family and the knowledge level on Prostate Cancer Causes

| | Value | df | Asymp. Sig. (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 2.792[a] | 4 | .593 |
| Likelihood Ratio | 4.516 | 4 | .341 |
| Linear-by-Linear Association | .323 | 1 | .570 |
| N of Valid Cases | 70 | | |

### 4.6 Patients' Outcome following Prostate Cancer diagnosis

The second objective sought to find out the perceived outcomes following a diagnosis of prostate cancer for both the families and the patients.

#### 4.6.1 Patient believing diagnosis results

The results show that majority of the patients did not believe the diagnosis (80%) and the minority did believe the results (20%) as show in the Table 8.

Table 8: Patient believing diagnosis results

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Respondent believing diagnosis results | No | 56 | 80 |
| | Yes | 14 | 20 |
| Total | | 70 | 100 |

### 4.6.2 Meaning of Prostate Cancer diagnosis

Majority of the patients responded that positive diagnosis meant death sentence (57.14%) followed by loss of work (15.71%), normal life (14.29%) and others (12.86%) as shown in Table 9.

Table 9: Meaning of Prostate Cancer diagnosis

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Meaning of the Prostate Cancer diagnosis to the respondent | Death sentence | 40 | 57.14 |
| | Loss of work | 11 | 15.71 |
| | Normal life | 10 | 14.29 |
| | Others | 9 | 12.86 |
| Total | | 70 | 100 |

### 4.6.3 Likert scale on perceived Outcome of Prostate Cancer diagnosis

Generally, patients tended to agree that they had accepted their prostate cancer diagnosis, they also felt that prostate cancer was embarrassing and prostate cancer patients could work effectively (table 10). On a five-point Likert scale the means were 3.84, 3.21, 3.46 respectively and a median of 4. Patients seemed to disagree with the statement that prostate cancer patients were doomed to die. Patients were not sure if prostate cancer affected intimacy, prostate cancer patients could have intimate relationships and prostate cancer patients could recover fully (Table 10).

Table 10: Patients' opinion on the positive prostate cancer diagnosis

| Statement | SA | A | NS | D | SD | Median | Av | Std dev | Mode |
|---|---|---|---|---|---|---|---|---|---|
| Acceptance of prostate cancer diagnosis | 20 | 35 | 3 | 8 | 4 | 4 | 3.84 | 1.14 | 4 |
| PCa was embarrassing | 10 | 26 | 10 | 17 | 7 | 4 | 3.21 | 1.25 | 4 |
| PCa affected intimacy | 6 | 22 | 24 | 14 | 4 | 3 | 3.17 | 1.04 | 3 |
| It's shameful having prostate cancer | 15 | 14 | 6 | 23 | 12 | 2.5 | 2.96 | 1.45 | 2 |
| Patients with PCa could have intimate relationships | 9 | 20 | 30 | 6 | 5 | 3 | 3.31 | 1.04 | 3 |
| Patients could be treated and recover fully | 12 | 15 | 30 | 6 | 7 | 3 | 3.27 | 1.15 | 3 |
| Diagnosed patients could work effectively | 16 | 20 | 11 | 20 | 3 | 4 | 3.37 | 1.24 | 4 |
| Prostate cancer was a serious disease | 13 | 22 | 23 | 8 | 4 | 3.5 | 3.46 | 1.1 | 3 |
| Patients could live a normal life after treatment | 20 | 15 | 17 | 12 | 6 | 3.5 | 3.44 | 1.3 | 5 |
| Diagnosed patients were doomed to die | 10 | 4 | 13 | 22 | 21 | 2 | 2.43 | 1.36 | 2 |

Likert scale score Strongly agree (SA)= 5 agree (A)= 4, not sure (NS)=3, disagree (D) = 2, strongly disagree (SD) = 1

### 4.7 Families Perceived Outcome following Prostate Cancer diagnosis of a relative

#### 4.7.1 Family believing diagnosis results

The results show that majority of the families did not believe the diagnosis (90.77%) and the minority did believe the results (9.23%) as show in Table 11.

Table 11: Believing of diagnosis results

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Believing of the diagnosis | Yes | 59 | 90.77 |
| | No | 6 | 9.23 |
| Total | | 65 | 100 |

#### 4.7.2 Meaning of Prostate Cancer diagnosis

Majority of the families responded that positive diagnosis of their relative meant disease burden (84.62%) followed by normal life (13.85%) and loss of work (1.54%) as shown in Table 12.

Table 12: Meaning of Prostate Cancer diagnosis

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Meaning of prostate cancer diagnosis of the relative | Disease burden | 55 | 84.62 |
| | Loss of work | 1 | 1.54 |
| | Normal life | 9 | 13.85 |
| Total | | 65 | 100 |

### 4.7.3 Likert scale on Families perceived outcome of Prostate Cancer diagnosis

Families tended to agree that they had accepted their relative's prostate cancer diagnosis, they also felt that prostate cancer patients can live normally after treatment (table 13). On a five-point Likert scale the means were 4.12, 3.43 respectively and a median of 4. Relatives seemed to disagree with the statement that prostate cancer patients were doomed to die and also that persons with prostate cancer could have intimate relationships. They were also not sure if they were embarrassed of their prostate cancer relative, prostate cancer affected intimacy between couples, It was shameful to have a prostate cancer relative, Prostate cancer patient could work effectively and whether prostate cancer is a serious disease (Table 13).

Table 13: Family's opinion on prostate cancer diagnosis

| Statement | SA | A | NS | D | SD | Med | Ave | Stdev | Mode |
|---|---|---|---|---|---|---|---|---|---|
| Family had accepted that a relative had PCa | 29 | 23 | 5 | 8 | 1 | 4 | 4.12 | 1.01 | 5 |
| Family was embarrassed of PCa relative | 9 | 16 | 18 | 10 | 12 | 3 | 3 | 1.31 | 3 |
| Prostate cancer affected intimacy between couples | 14 | 9 | 10 | 22 | 9 | 3 | 2.95 | 1.4 | 2 |
| It was shameful to have a PCa relative | 7 | 8 | 19 | 15 | 16 | 3 | 2.62 | 1.28 | 3 |
| Persons with prostate cancer could have intimate relationships | 4 | 12 | 16 | 21 | 12 | 2 | 2.62 | 1.17 | 2 |
| Patients with PCa could be treated and recover fully | 19 | 21 | 13 | 7 | 5 | 4 | 3.65 | 1.23 | 4 |
| Prostate cancer patients could work effectively | 12 | 16 | 19 | 13 | 5 | 3 | 3.26 | 1.2 | 3 |
| Prostate cancer was a serious disease | 12 | 18 | 20 | 11 | 4 | 3 | 3.35 | 1.15 | 3 |
| Prostate Cancer patients could live normally after treatment | 13 | 25 | 9 | 13 | 5 | 4 | 3.43 | 1.24 | 4 |
| Prostate cancer patients were doomed to die | 4 | 8 | 6 | 18 | 29 | 2 | 2.08 | 1.27 | 1 |

### 4.8 Patients' Health seeking Behaviour following Prostate Cancer diagnosis

The study sought to find out the health seeking behaviour of both the patients and the families.

#### 4.8.1 Having calendar of Hospital appointments

Majority of the patients had calendar of appointments (95.71%) and (4.29%) did not have as shown in Table 14.

Table 14: Having a Calendar of Appointments

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Patient having a calendar on hospital appointments | No | 2 | 4.29 |
| | Yes | 67 | 95.71 |
| Total | | 70 | 100 |

Moreover, all the patients who had calendar of appointments reported that it was beneficial. Those who didn't have the calendar of appointments reported that they didn't have because they didn't think it was beneficial.

#### 4.8.2 Reason for Seeking Healthcare

Majority of the patients responded that they seek health care because they want to get healed.

#### 4.8.3 Improvement of Patients general Health

Majority of the patients felt that their general health was improving (94.29%) and (5.71%) minority felt that they were not improving as shown in Table 15.

Table 15: Improvement of Patients general Health

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Improvement in patients' general health | No | 4 | 5.71 |
| | Yes | 66 | 94.29 |
| Total | | 70 | 100 |

#### 4.8.4 Mode of paying for Medical Expenses

Majority of the patients were using insurance (90%) to pay for medical expenses followed by out of pocket (8.57%) and harambee (1.43%) as shown in Table 16

Table 16: Mode of paying Medical expenses

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Mode of paying for medical expenses | Harambee | 1 | 1.43 |
| | Insurance | 63 | 90 |
| | Out of pocket | 6 | 8.57 |
| Total | | 70 | 100 |

### 4.8.5 Hospital offering best care

Majority of the patients felt that the hospital that they were attending was offering the best care (98.57%) and minority felt that the hospital was not offering the best care (1.43%) as shown in Table 17.

Table 17: Hospital offering best care

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Attending facility providing best care | No | 1 | 1.43 |
| | Yes | 69 | 98.57 |
| Total | | 70 | 100 |

### 4.8.6 Source of Drugs

Majority of the patients got their drugs from the hospital (97.14%) followed by other sources (2.86%) as shown in the Table 18.

Table 18: Source of Drugs

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Acquiring drugs | Hospital | 68 | 97.14 |
| | Others | 2 | 2.86 |
| Total | | 70 | 100 |

## 4.9 Families' Health seeking Behaviour following relative's Prostate Cancer diagnosis

### 4.9.1 Having calendar of Hospital appointments

All the families had a calendar of hospital appointments for their relative (100%) and they all responded that the calendar was beneficial to them and their patients.

### 4.9.2 Improvement of Patients general Health

Majority of the families felt that their relative's general health was improving (90.77%) and (9.23%) minority felt that they are not improving as shown in table 19.

Table 19: Improvement of Patients general Health

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Do family observe improvement in relative's general health | No | 6 | 9.23 |
| | Yes | 59 | 90.77 |
| Total | | 65 | 100 |

### 4.9.3 Mode of paying for Medical Expenses

Majority of the families were using insurance (78.46%) to pay for their relatives' medical expenses followed by out of pocket (20%) and harambee (1.54%) as shown in table 20.

Table 20: Mode of paying for Medical Expenses

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Mode of paying relative's general expenses | Out of pocket | 13 | 20 |
| | Harambee | 1 | 1.54 |
| | Insurance | 51 | 78.46 |
| Total | | 65 | 100 |

### 4.9.4 Hospital Offering Best Care

Majority of the families felt that the hospital that they were taking their relatives was offering the best care (98.46%) and minority felt that the hospital was not offering the best care (1.54%) as shown in Table 21.

Table 21: Hospital offering best care

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Is the attending facility offering best services to relative | No | 1 | 1.54 |
| | Yes | 64 | 98.46 |
| Total | | 65 | 100 |

### 4.9.5 Source of Medications

The families were asked on where they get the drugs for their relatives and all of them (100%) responded that they get drugs from the hospital.

### 4.9.6 Any problem taking medications

Majority of the families (86.5%) reported that their relatives have no problem taking drugs as compared to the minority (13.85%) who reported that their relatives have a problem taking drugs as shown in Table 22.

Table 22: Any problem taking medications

| Variable | Value | Frequency | Percentage |
|---|---|---|---|
| Does the patient have any problem in taking medications | No | 56 | 86.15 |
| | Yes | 9 | 13.85 |
| Total | | 65 | 100 |

# CHAPTER FIVE
# DISCUSSION

## 5.1 Social demographic information

The results in this study showed that the highest number of prostate cancer patients were the married people; more patients were in informal employment as compared to formal employment; most of the patients had attained both primary and secondary education; majority of the prostate cancer patients in this study were Christians and the percentage of the number of patients who had no prostate cancer history in their families was higher than the percentage of the of patients who had the disease history in the family. A high percentage of the families who were the caretakers of the prostate cancer patients were their wives which agrees with the statistics that a bigger percentage of the patients were married. The social-demographics of a patient and family play a vital role in determining when they seek care, if they can afford that care, what the possible outcomes are and whether they will seek care at all (Edwards & Clarke, 2004).

Aizer *et al*., (2013) found out that married patients were less likely to die as a result of their cancer after adjusting for demographics, stage, and treatment. The benefit associated with marriage was greater in males than females for all outcome measures analyzed (Aizer *et al*., 2013). Married patients had significantly longer median survival than those who were divorced, single, separated or widowed (Konrad *et al*., 1996). Konrad *et al*., (1996) further found out that in models that controlled for age, stage, race and treatment, married patients had a significantly lower risk of mortality than those who were divorced, single, separated or widowed.

Occupation was found to have no association with the risk of having prostate cancer in a study which investigated if occupation such as farming exposed individual to herbicides and pesticides had an effect on the risk of having prostate cancer (Checkoway *et al*., 1986). Low literacy may be overlooked but a significant barrier to the diagnosis of early-stage prostate cancer among men (Bennett *et al*., 1998). The study by Bennett *et al*., (1998) recommended that low-literacy educational materials may improve patient awareness of prostate cancer and improve the frequency of diagnosis of early-stage cancer.

In a study that investigated whether religion had an effect on the prostate cancer patients, the results revealed that relationship with God was a significant factor in the prediction of role, emotional and social functioning for these men after controlling for age, reported severity of treatment reactions and nonreligious resources (Gall, 2004). The results further suggested that relationship with God may function in a complex manner as a resource in coping with prostate cancer. Men with positive family history reported greater perceived vulnerability of developing prostate cancer. Additional results confirmed the increased likelihood of men with a positive family history to undergo prostate cancer screening and suggest that heightened concerns about developing the disease are an important motivating factor (Jacobsen *et al.*, 2004).

Results from this study also revealed that age group of 60-70 is most prone to prostate cancer as compared to age groups below 50 years and age groups above 90 years. These results concur with a research by Vickers *et al.,* (2014) which revealed the age of 60 years as the one mostly prone to positive diagnosis of prostate cancer. Further research has shown that age is the greatest predisposing factor to the cancer of prostate (Loeb *et al*., 2006). The risk increases notably after fifty years in white populations and those with familial predisposition. In black populations, the risk increases significantly after 40 years and in those with familial predisposition (Vickers *et al.*, 2014). These results agree with a study done in the United Kingdom which revealed that incidence rates are highest in older people (50-74yrs) (Cancer Research UK, 2014). A study by Ngugi and Magoha (2007), found that cancer of the prostate is not common in males below the age 40 years, but the disease is more frequent as the person ages. American Cancer Society (2014), also states that there is no known specific cause of prostate cancer but the most common risk factors are ageing, family history of prostate cancer and ethnicity. The results mirror findings from a study by Litwin and Tan (2017), which found that the risk of suffering from prostate cancer increases with age and men above the age of 50 years have an increased risk.

The results show that the average age of prostate cancer patients is 69.76 years with a 95% confidence interval; had an average number of 5 children and average weight, height and BMI of 63.3kg, 169.11cm and 22.29 respectively. Findings from research

have shown that fatherhood status has been hypothesized to affect prostate cancer risk but the current evidence is limited and contradictory (Eisenberg *et al.*, 2010). Results from a research by Jørgensen *et al*., (2008) showed that there was no relationship between fatherhood and incident prostate cancer hazard ratio. However, after stratifying for prostate cancer screening and prostate-specific antigen (PSA), unscreened childless men had a lower risk of prostate cancer compared with fathers. The number of children fathered was not related to prostate cancer (Wirén *et al.*, 2013). Studies have shown that there is no specific weight for prostate cancer patients. However, findings by Kim *et al*., (2011) showed that patients receiving androgen-deprivation therapy had significant weight gain (+2.2 kg). This change occurred primarily in the first year of therapy, with patients neither losing nor gaining additional weight thereafter.

The results revealed that majority of the prostate cancer patients in this study had a body mass index of between (20 – 25) kg/m$^2$. The BMI indices are classified as; healthy (18.5–24.9), overweight (25–29.9) and obese (≥ 30) (MacInnis & English, 2006). These findings show that majority of the patients were healthy though there was a significant number of them who were overweight and a very small percentage that was obese. Several researches have tried to investigate whether obesity is associated with an increased risk of prostate cancer death post-radical prostatectomy (Allot *et al.*, 2013). Research findings have concluded that obese men are more likely to die from prostate cancer when compared to non-obese men and this association is strongest among men with higher Gleason scores (Cao & Ma, 2011).

### 5.2 Knowledge on Prostate Cancer

A high percentage of both the prostate cancer patients and their relatives perceive that prostate cancer is caused by genetic factors and should be treated by medical personnel. The second cause of prostate cancer is perceived to be witchcraft with the least cause being demons. Some patients and their relatives also felt that prostate cancer could be treated by involvement of religious people. The perception of prostate cancer being caused by genetic factors and should be treated by medical personnel could be as result of having acquired education as compared to other perceived causes which were common in the African traditional society where

formal education was not available. This concurs with finding by Winterich *et al.*, (2009) that noted that as education increased so did men's knowledge about prostate cancer causes. In a study, all men with low educational attainment did not know what causes prostate cancer, but some guessed such as "like all cancers, it's just something that randomly occurs (Forrester-Anderson, 2005). Most with medium educational attainment provided at least one cause with aging as the most common. Some also identified family history. Other causes given were pesticides, infection, diet, and unsafe sexual practices. These results also contrast with findings by Nakandi, *et al.,* (2013) where in the study, over 50% of the respondents had heard of prostate cancer before they were positively diagnosed. A study in the United States showed that lack of participation in screening for prostate cancer by black men was influenced by several cultural factors, including knowledge, health beliefs, barriers, and relationships with primary healthcare providers (Woods, 2004).

Results indicated that over 50% of the prostate cancer patients and their relatives had no idea of the symptoms of prostate cancer neither had they heard of it before the patient was diagnosed. This shows that knowledge on prostate cancer is still inadequate among majority of the population. These results concur with findings by Nakandi, *et al.,* (2013) where only 10% of the respondents had good knowledge of the symptoms of prostate cancer. This lack of knowledge on symptoms of prostate cancer is associated with education. Men with the lowest education had poor understanding of the prostate gland and screening, so they cannot make informed decisions about screening (Winterich *et al.,* 2009). A study by Adibe *et al.,* (2017) noted that a great number of respondents who showed a high knowledge level had college degree. In addition, the respondents who had a college degree and above, had positive perception towards screening for prostate cancer and its subsequent management (Adibe *et al.,* 2017). Lack of in-depth knowledge of prostate cancer regarding its risk factors, symptoms, treatment and screening practice was low and it needed to be improved through organized community and hospital-based health education programs in order to achieve greater knowledge of the disease among the populace (Agbugui *et al.,* 2013). In a study in the USA, black men displayed little knowledge about the prostate gland. However, some evidence suggested that they were relatively more knowledgeable about prostate cancer itself, particularly men

who were educated to graduate level, lived in urban areas and were older. The study also reported high awareness of prostate cancer symptoms among black men. However, knowledge on prostate cancer risk factors varied (Winterich *et al.*, 2009).

The families to the patients who are supposed to be the caretakers of the patients seemed to have an understanding on the treatment that their patient was receiving. However, 46% of the families had no understanding on the treatment. This percentage is still high since these are the people who are supposed to guide the patients through seeking medication for their health to improve. Lack of understanding of this treatment could be as a result of ignorance due to bad perception about prostate cancer treatment & outcomes or even the complexity in the treatment itself. The complexity could be compounded by the individual explanations given by the health care providers about the treatment. Results from a research by Shahid *et al.,* (2009) showed that shame, misunderstanding, fears surrounding death, utilization of traditional healing and perceptions such as PCa is contagious had an effect towards patient's and family's decisions about health. Fagerlin *et al.,* (2004) found out that available patient education materials on early-stage prostate cancer treatment did not contain comprehensive information about the risks and benefits of each treatment. A greater understanding of patients' preferences for mode of treatment was found central to current models of shared patient-doctor decision making (Bowling & Ebrahim, 2001). It was also of potential importance in enhancing patient adherence to treatment and, in turn, patients' health outcomes (Bowling & Ebrahim, 2001).

Lepore *et al.,* (2003) found out that education increased knowledge on prostate cancer. Further, it was found that individuals who scan or seek cancer information are those who acquire knowledge, adopt healthy lifestyle behaviours, and get screened for cancer (Shim *et al.*, 2006). A study on knowledge, attitudes, and perception of prostate cancer among male outpatients of a tertiary care hospital in south-east Nigeria found out that there was a strong evidence of association between education and perception of prostate cancer (Aluh *et al.*, 2018). Education was found to have an impact on knowledge since respondents with a middle school or lower and high school were less knowledgeable compared to those with a college

degree or higher (Morlando *et al.,* 2017). Orarusi *et al*., (2012) state that increased levels of knowledge were present among respondents at high of PCa and mostly those who had a familial predisposition to prostate cancer. A study by Ago and Lewis, (2001) in USA revealed that knowledge about prostate cancer was negatively correlated with age, education and income. The study further recommended a culturally sensitive promotional campaigns to increase awareness of the racial disparities in the incidence of prostate cancer and mortality rates.

The findings from this study agree with study by (Ajape *et al*., 2009) in Nigeria which reported that majority of the respondents were not aware of cancer of the prostate including causes, symptoms and management. A study involving Indian patients and families reported that majority of the respondents were not aware of the management options for prostate cancer and also the possible disease and this affected their health seeking behaviours (Xu, , Dailey, Schwartz, Neale and Eggly, 2012).

Findings from a study by Jacobsen *et al*., (2004) confirmed the increased likelihood of men with a positive family history to undergo prostate cancer screening and suggest that heightened concerns about developing the disease are an important motivating factor. However, there was no association between family history and knowledge on the causes of prostate cancer. Risk for prostate cancer was found to be increased by onset in relatives and multiple relatives with the disease (Stein & Colditz, 2004). Generally, most studies have found that positive family history increases the risk of prostate cancer, but there was no significant association between the family history and the knowledge on the causes of prostate cancer. This is interesting since it clearly shows that relatives are not interested in finding out the causes of the prostate cancer despite one of their kin suffering from the disease.

### 5.3 Outcome of Prostate Cancer Diagnosis to the Patients and Families

The results revealed that 50% of the patients suffered hypertension; 80% did not believe the diagnosis at first and over 50% perceived the diagnosis as a death sentence. Likewise, 90% of the families did not believe the diagnosis, and 84.62% perceived the outcome as a disease burden. This study associated the hypertension

could be due to stress and mental disturbances that arose due to positive diagnosis. Also, age which is a risk factor for both hypertension and prostate cancer.

A study by Else-Quest *et al*., (2009) found out that people who suffer from a disease have often been stigmatised. The internalization of stigma leads to the experience of self-blame. Further research found out that when a person receives a diagnosis of prostate cancer, one may experience a range of feelings; including disbelief, fear, anger, anxiety and depression (Chapple & Ziebland, 2002). However, with time, each person finds his own way of coping with a prostate cancer diagnosis. Kronenwetter *et al*., (2005) found out that most patients felt that their masculinity had been eroded after being diagnosed with prostate cancer. For that reason, they were unwilling to go and seek health care provider's help since there is the traditional perception that men are never weak and 'boys don't cry'. It was suggested that prostate cancer and hypertension shared a common androgen-mediated mechanism and further prospective studies were recommended to confirm whether hypertension is a risk factor for prostate cancer (Navin & Ioffe, 2017).

A study in Australia found that respondents expressed deep fear and fatalism expectations about prostate cancer. They responded that prostate cancer equals death and this belief was considered a major factor in the disease management and health seeking behaviour. The results mirrored a study in USA where prostate cancer diagnosis was considered to be a death sentence and men expressed that they would rather not know. For men who had previous or ongoing health problems, they were particularly concerned that prostate cancer diagnosis would increase the burden of living with the disease to beyond what they would cope with. In the same study in Australia, respondents associated the diagnosis of PCa curses, in which they believed the curse is due to punishment caused by doing something wrong in the past. Such attribution of cancer to spiritual causes can lead to acceptance of the disease without question and not seeking help for it thus affecting the health seeking behaviours. As a result, people feel ashamed of their perceived wrong doing and conceal their clinical manifestations from others and thereby delaying diagnosis and/or not seeking treatment at all. In the same study, some respondents perceived cancer as being contagious and others reported feelings of isolation after being

diagnosed with prostate cancer and thereby loosing friends and families who held the belief that they were at risk of contracting the disease because it was contagious. In a study, perceptions of prostate cancer as a death sentence and/a taboo topic were prevalent. In the same study, 45% of respondents believed that prostate cancer could be fatal, and 19% had abstained from seeking care because of fear, despite experiencing urinary symptoms. The findings from this study are supported by (Daher, 2012) who stated that many individuals associate the diagnosis of any cancer with death, and they perceive cancer as a punishment from God.

Generally, patients tended to agree that they had accepted their prostate cancer diagnosis, they also felt that prostate cancer was embarrassing and prostate cancer patients could work effectively. On a five-point Likert scale the means were 3.84, 3.21, 3.46 respectively and a median of 4. Patients seemed to disagree with the statement that prostate cancer patients were doomed to die. Patients were not sure if prostate cancer affected intimacy, prostate cancer patients could have intimate relationships and prostate cancer patients can recover fully. On the other hand, families tended to agree that they had accepted their relative's prostate cancer diagnosis, they also felt that prostate cancer patients could live normally after treatment. On a five-point Likert scale the means were 4.12, 3.43 respectively and a median of 4. Families seemed to disagree with the statement that prostate cancer patients were doomed to die and also that persons with prostate cancer could have intimate relationships. They were also not sure if they were embarrassed of their prostate cancer relative, prostate cancer affected intimacy between couples, it was shameful to have a prostate cancer relative, Prostate cancer patient could work effectively and whether prostate cancer was a serious disease.

Research findings by Religioni & Deptała (2015) showed that the level of acceptance of illness depends on the primary site of cancer. Prostate cancer patients showed the highest level of acceptance and lung cancer patients the poorest acceptance of illness. The degree of disease acceptance was also dependent on the respondent's income (Religioni & Deptała, 2015). The higher the net income-per-household-member, the better disease acceptance. The excess morbidity due to prostate cancer attributed to screening was not due to the screening itself, but rather

to the mismanagement of those diagnosed with prostate cancer (Carmichael *et al*., 2016). By employing active surveillance for appropriate individuals diagnosed with prostate cancer, there can be separation of the ones who actually need curative treatment from those whose disease will run an indolent course. This is in agreement with the response from the respondents in this study that prostate cancer patients are not doomed to die. Some patients notice that their penis is slightly smaller after prostate cancer treatment (Parekh *et al*., 2013). In the study by Parekh *et al*., (2013) about 3 percent of participants reported that they had a reduced penis size after radical prostatectomy or radiation plus hormone therapy. The patients said their smaller penis affected their relationships and their satisfaction with life. A study in USA found that sexual function issues were being reported more by the spouse other than the patient himself (Harden J Northouse *et al*., 2008). The study recommended that more studies are needed to understand better the end effect of living with cancer of prostate on sexual satisfaction (Harden J Northouse *et al*., 2008). A related study in England found that 12.9% of the respondents reported being unable to have an erection (Glaser AW, 2013). Similar studies have found that being diagnosed with prostate cancer was perceived to potentially jeopardize man's manhood or masculinity. Some men feared prostate cancer diagnosis because they felt they would have to relinquish their role as the rock of their family. Participants had also lack of awareness of the symptoms of prostate cancer (Glaser AW, 2013).

Findings from a research by DeSantis *et al*., (2014) stated that metastatic prostate cancer is not curable. However, treatment can often help to control the cancer for prolonged periods of time. This can help to reduce symptoms and improve the quality of life (DeSantis *et al*., 2014). Studies have found out that prostate cancer is a serious disease because of its slowly developing nature, often being asymptomatic till the disease is in advanced stage (Miller *et al*., 2016). Studies show that some patients die because of other reasons but when cancer of the prostate starts to develop rapidly it is very dangerous (Siegel *et al*., 2012). Prostate cancer in its early stages can be treated with very good chances for survival. Prostate cancer that has not yet metastasized to distant areas is curable, and can be controlled for several years. Such patients can have a normal life and when they die it may be due to other causes such as diseases of the hear (DeSantis *et al*., 2014). In a study by Amir *et al*., (2010) patients

reported having difficulties when returning to work because of employers attitudes towards prostate cancer.

A study done in the United States of America showed that prostate cancer is seen as a death sentence and the treatment involved poised a threat to men's masculinity (Allen *et al*., 2007). A study conducted among American-African men revealed that the men perceived prostate cancer diagnosis as a death sentence and avoided treatment (Cobran *et al*., 2014). The study further revealed that perceived embarrassment influenced the patient's and family's health seeking behaviour. James et al., (2017) report that most men perceive the diagnosis of prostate cancer to be a threat to their manhood and thereby compromising their image in the society. Low levels of income changes in financial flow which results from PCa treatment can affect the available resources which are essential in helping the patient and the family cope with outcomes of treatment and this can cause perceptions of threat (James *et al*., 2017).

### 5.4 Health Seeking Behaviour Following Diagnosis of Prostate Cancer

The results from this study showed that 95% of the patients and all their families kept a calendar on hospital appointments and they found it useful. Over 90% of the patients and their relatives observed general health improvement after treatment. Over 78% of the patients and their relatives had embraced insurance as a way of meeting the medical expenses. More than 90% of the respondents were satisfied with the services offered at their medical facility and more than 95% acquired drugs from their respective hospitals. Over 86% of the families reported that their patients have no problem with taking the drugs.

The statistics in this study portray a good health seeking behaviour following the diagnosis of prostate cancer. In a study by Pradhan *et al.,* (2018), most of the study subjects were diagnosed at stage II and III. Diagnosis of cancer at advanced stages was attributed to the fact that there was inadequate awareness and inappropriate health seeking behaviour among general population. Most prostate cancer patients were observed to seek sexual medications (Hyde *et al*., 2016). This was attributed to masculine beliefs which are highly salient. Men who were more emotionally self-reliant and attributed greater importance to sex formed stronger help-seeking

intentions (Hyde *et al*., 2016). A study on health seeking behaviour among cancer patients attending ocean road cancer institute in Tanzania showed that 68.2% of the patients presented themselves when PCa was already at late stages of development (Kombe *et al*., 2007). Men were observed to have a poor health seeking behaviour after diagnosis with prostate cancer according to Hyde *et al*., (2017). This is because they felt that their masculinity had been eroded after being diagnosed with prostate cancer. For that reason, they were unwilling to go and seek health care provider's help since there is the traditional perception that men are never weak. The findings from this study contradict with the findings in a study in the United Kingdom which found that patient's and family's were dissatisfied with the current follow-up care regimes and information they were receiving (Lamers RE et al., 2016)

# CHAPTER SIX

# SUMMARY, CONCLUSION AND RECOMMENDATIONS

## 6.1 Summary of the study

Cancers are the second leading cause of death in developing nations and prostate cancer is a frequently diagnosed cancer among men. Perceptions influence health and well-being outcomes of prostate cancer patients. It is important that health professionals understand the patient's and family's perceptions to the diagnosis of prostate cancer so that they can provide optimal care. Unfortunately, the perceptions associated with the diagnosis of PCa are not directly challenged in many countries including Kenya. On review of literature, several gaps were identified which prompted the researcher to carry out this research. According to National cancer screening guidelines, 2018 decisions regarding prostate cancer screening and management should be individualized, based on personal preferences and perceptions. However, in-depth literature on the patient's and family's perceptions was lacking. Patients are often reluctant to seek cancer treatment as they perceive it to be unbearable, thus, affecting their health seeking behavior and the subsequent health outcomes. Inadequate knowledge, fear, and poor perceptions are enormous challenges in prostate cancer prevention, control, and management. There is inadequate literature both globally, regionally and locally on patient's and family's perceptions towards diagnosis of prostate cancer.

The study sought to explore patient's and family's perceptions towards diagnosis of prostate cancer in Tharaka Nithi County. The study objectives were to determine the knowledge level, outcome and health seeking behaviour amongst patient's and family's towards prostate cancer. The researcher also sought to test a hypothesis on whether there was an association between history of prostate cancer in the family and the knowledge level prostate cancer causes.

The methods used in this research study was as follows; study area was Tharaka Nithi County in four purposively selected hospitals (Chuka level four hospital, Magutuni sub-county hospital, Chogoria Mission Hospital and Tharaka sub-county hospital) and data was collected in the month of March and April. A descriptive cross-sectional research design was used and 70 patients and 65 family's participated in the study.

Purposive sampling method was used to get the sample and data collection was done by use of interview schedules and focus group discussions. The instruments for data collection were pre-tested at Embu Teaching and Referral hospital. Validity of the tool was determined by extensive review of relevant literature from related research studies & through consultations of experts in oncology clinics. The researcher sought permission to carry out the research study from National Commission for Science, Technology and Innovation (NACOSTI) through Chuka University Ethics and Research Committee. Descriptive data was analyzed get percentages and frequencies using Statistical Package for Social Science (SPSS) version 23.0. Qualitative data was analyzed by organizing the data into themes according to the research objectives. The analyzed data was presented in charts, tables and narratives.

The study showed that men in the age group of 60-70 were most prone to prostate cancer and majority of the prostate cancer patients in this study had a body mass index of between (20 – 25) $kg/m^2$. A high percentage of patients and families perceived that prostate cancer was caused by genetic factors and should have been treated by medical personnel. This was a positive perception which if reinforced can improve the health outcomes. Over 50% of the patients and families had no idea of the symptoms of prostate cancer neither had they heard of it before the patient was diagnosed. Moreover, half of the patients suffered hypertension, majority did not believe the diagnosis at first and majority perceived the diagnosis prostate cancer as a death sentence. The study further showed that most of the patients and families kept a calendar on hospital appointments and they found it useful. Over 90% of the patients and families observed general health improvement after treatment and majority of the patients and families had embraced insurance as a way of meeting the medical expenses. More than 90% of the patients and families were satisfied with the services offered at their medical facility and majority acquired medications from their respective hospitals. Over 86% of the families reported that their patients have no problem with taking the medications. It was however established that there was no association between history of prostate cancer in the family and knowledge on the causes of prostate cancer. In summary, to increase patient's and family's willingness to accept modern oncology treatments, a different approach is required to engaging them in treatment which understands and addresses the concerns of

patients and families. To date, understanding TNC patient's and family's perceptions towards prostate cancer diagnosis has been largely neglected.

### 6.2 Conclusion

In conclusion, as is the case all the world, prostate cancer especially effects male population over certain age with higher prevalence. Since prostate cancer is a treatable disease if diagnosed early, individuals, and community should increase their levels of awareness, and knowledge. To this end, the feeling is that knowledge of effective sociocultural, and economical factors, and effective planning methods will decrease social, and medical burden incurred by patients diagnosed with cancer of the prostate and their families. This study demonstrates patients and their relatives with lower level of knowledge about prostate cancer. A strong correlation was demonstrated between family history, and increased risk of prostate cancer. However, it was demonstrated that family history of prostate cancer did not increase levels of knowledge on the causes of prostate cancer. Some of the problems among the patients and their relatives in this study were feeling of embarrassment, feeling that prostate cancer affects intimacy, lack of knowledge about prostate cancer, feeling of being ashamed because of prostate cancer diagnosis, cultural sensitivity, and in addition feeling that prostate cancer is a very serious disease. These are negative perceptions which if people are not educated against may affect the future screening, adherence to treatment, outcome and health seeking behaviour of the prostate cancer patients.

In this study, inadequacy of knowledge on the treatment received by the prostate cancer patients can be evaluated by the participants as "ignorance". This can be thought as an individual problem rather than an issue relating to healthcare system. It's a feeling in this study that its "ignorance" which refrains an individual from enquiring with their health care provider about the kind of treatment they are receiving. It can be deduced from this study that prostate cancer patients and their families in Tharaka Nithi County did not have adequate knowledge and favourable attitudes towards cancer of prostate. However, a notable number of the families and prostate cancer patients, exhibited good knowledge and positive attitudes & appropriate prostate cancer perception and the PCa treatment. This indicates that

there is need to institute educational programs that are intensive and aiming at encouraging PCa diagnosis and early detection. Results from studies have shown morbidity and mortality of PCa can be reduced by early detection and management. However, for this to happen, the level of knowledge regarding diagnosis, treatment and prostate cancer in general among the Tharaka Nithi County residents must increase exponentially. This would improve the attitudes and perception towards diagnosis and management of prostate cancer. Bodies such as the county government of Tharaka Nithi and the national government should ensure friendly policies aim at promoting of health education on and change of perceptions on cancer of the prostate. This should include and not limited to creating of education centers for prostate cancer screening and education probably have these centers do free screening for PCa in men aged 50 years and above, even in all levels of healthcare facilities and in form of scheduled medical camps. There should also be assessment of the knowledge levels and attitudes of patients, families and health care providers periodically among Tharaka Nithi residents towards diagnosis and treatment of prostate cancer. This research study contributes to a growing body of research on patient's and family's perceptions towards the diagnosis of prostate cancer.

### 6.3 Recommendation

Based from the research findings, the researcher makes the following recommendations.

i. There should be a national policy on Prostate Cancer diagnosis and public health information on the diagnosis and treatment of prostate cancer.
ii. Establishment of centers for prostate cancer education & screening and probably institute free to low-cost PCa screening services for males aged 50 years and above.

### 6.4 Suggestions for further Research

The following are suggestions for further research based on the research findings;

i. To investigate healthcare professionals' perceptions and their attitudes towards the diagnosis and treatment of prostate cancer.

ii. To investigate the relationship between hypertension and prostate cancer, specifically if hypertension is a risk factor to prostate cancer.

iii. To evaluate the uptake of prostate cancer screening among residents of Tharaka Nithi County.

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# APPENDICES

## Appendix I: Letter of introduction

This letter will be administered to the patients and families in all the study hospitals. It has two parts.

1. Information sheet (to share information about the research with you)
2. Assent form (for signature if you agree to take part)

You will be given a copy of the full informed consent form.

### PART I: Information Sheet

### Introduction

My name is Timothy Kinoti Kirungia a MScN student from Chuka university. I am requesting for your participation in a study which topic is "*patients' and families' perceptions towards diagnosis of prostate cancer in Tharaka Nithi County"*. The findings will be used by the hospital and the county to formulate policies and updates on care and support of prostate cancer patients. This will not only benefit the patients but also the county at large.

I am going to extensively explain about this research and invite you to voluntarily participate. I am going to give you time to decide on whether or not to participate in the research. You are free to consult before making any decision. You are free to ask any question or clarification about the research during, and after data collection using the contact address provided at the end of this document.

### Purpose of the research

The findings from this study will enhance our understanding of the associated perceptions about prostate cancer diagnosis. The study will be important in the health care set up, academicians, policy makers and the nursing profession.

### Risks and Benefits

There are no direct benefits for you as an individual but your involvement will contribute to improved patients care. There are no risks involved in taking part in this research. You may change your mind later and discontinue taking part even if you had agreed earlier.

**Confidentiality**

The identity of those taking part in the research will not be disclosed or shared with anyone. Informed consent will be obtained from you in order to participate in the study. To ensure confidentiality, the data collection forms will not bear your name. In addition, no names will be identified in the audio recordings and the recording will be deleted once analysis is done. You will only be identified by the study code number. The collected data will be kept safely and only used for the sole purpose of meeting the objective of the study.

**Duration**

The focus group discussion will only take a period of maximum 45 minutes and the interview schedule will take about 20 minutes.

**Contacts**

Questions are welcome at the moment or later, even when the study is in progress. If later use the contacts below.

**Kirungia Kinoti Timothy**
**P.o. Box 641 - 60400**
**Chuka.**
**Mobile Number: 0723714302**
**Email address**: timothykirungia@yahoo.com

**PART 2: Respondent's assent form**

I fully understand the nature of the study and how I will participate in it. I fully understand that if I agree to participate in the study, the proceedings may be digitally recorded and the information later used for analysis purposes only and be deleted. I understand that participation is voluntary and I am free to withdraw from the study at any time. I am also aware that if I decide not to participate in the study, it will not affect the services I provide to my clients. By signing this form, I will be accepting to participate in the study.

Signature_____ Date_____ /_____/_____

## Appendix II: Interview Schedule for Patients

**Serial No……**

**INSTRUCTIONS**

Do not write your name on the questionnaire.

For the questions with choices, please tick appropriate response.

**Section A: Social -demographic information**

1] Age……

2] Marital status

Single [ ] Married [ ] Separated [ ] Divorced [ ] Widowed [ ]

3] If married, spouse occupation

Formal employment [ ] Informal employment (Specify)…….

4] Highest level of education completed

University/College [ ] Secondary [ ] Primary [ ] Never schooled [ ]

5] Religion

Christian [ ] Muslim [ ] Others (specify)……..

6] Ethnicity…….

7] Number of children……

8] Who usually takes care of you?

Wife [ ] Son [ ] Daughter [ ] Brother [ ] Others (Specify)……

9] Is there a history of prostate cancer in your family? Yes [ ] No [ ]

**Acuity of the illness/ Health status**

10] Duration of the prostate cancer (yrs)……..

11] Other illnesses

HIV/AIDS [ ] Hypertension [ ] Diabetes Mellitus [ ] Others (Specify)……

12] Current complaints…….

……

…..

13] Current treatment

Chemotherapy [ ] Radiotherapy [ ] Male hormone depletion therapy [ ]

Active surveillance [ ]

14] Anthropometrics

a) Weight……..Kg

b) Height……..Meters

c) BMI……

**Section B: Knowledge**

15] Before you were diagnosed with prostate cancer, have you ever heard of prostate cancer?

Yes [ ] No [ ]

16] Indicate which of the following can cause prostate cancer

Demons [ ] Curse [ ] Witchcraft [ ] Genetic [ ] Bad omen [ ]
Others (Specify)……

17] Prostate cancer patients should be treated by:

Witch doctors [ ] Religious people [ ] Medical personnel [ ] Herbal practitioners [ ]

Others (specify)……

18] Do you know the symptoms of prostate cancer? Yes [ ] No [ ]

19] If yes, what are the symptoms?

……

……

20] Do you understand the treatment you are receiving? Yes [ ] No [ ]

21] Please provide an explanation for above response

……

……

……

**SECTION C: Outcome of Prostate cancer diagnosis**

22] Did you believe when you were told you have prostate cancer? Yes [ ] No [ ]

23] What did the diagnosis of prostate cancer mean to you?

Death sentence [ ] Normal life [ ] Loss of work [ ] Others

……

……

24] How did the diagnosis affect your family role

……..……..

……

……

25] How has the diagnosis affected your work?

……

……

26] Please mark one or more if you agree or not agree with the following statements

| **STATEMENT** | **Strongly agree** | **Agree** | **Not sure** | **Disagree** | **Strongly disagree** |
|---|---|---|---|---|---|
| I have accepted that I have prostate cancer | | | | | |
| It is embarrassing to be diagnosed of Prostate ca | | | | | |
| Prostate cancer diagnosis affects intimacy between couples | | | | | |
| It is shameful to be diagnosed with prostate cancer | | | | | |
| Persons diagnosed with prostate cancer can have intimate relationships | | | | | |
| Somebody diagnosed with prostate cancer early can be treated and fully recover | | | | | |
| Do you think people diagnosed with prostate cancer can effectively work? | | | | | |
| prostate cancer is a serious disease | | | | | |
| One can live a normal life after treatment of prostate cancer. | | | | | |
| Somebody diagnosed with prostate cancer is doomed to die | | | | | |

**SECTION D: Health seeking behaviour**

27] Do you go for hospital appointments Yes [ ] No [ ]; If Yes, proceed to question No. 29

28] If No; why

……

……

29] Do you have a calendar of appointments Yes [ ] No [ ]

30] If yes above, is it useful to you? Yes [ ] No [ ]

31] If No in question 30, please explain

……..……

……..……

32] What makes you seek health care

……

……

33] Do you seek alternative health care services? Yes [ ] No [ ]

34] If yes where?
.....

35] In your opinion, do you see your general health improving? Yes [ ] No [ ]

36] If no, what do you see as the main problem(s)?
……

……

……

37] How do you pay for your medical expenses?
Out of pocket [ ] Insurance [ ] Harambees [ ]

38] If through insurance, what type of insurance?
NHIF [ ] Company medical insurance [ ] Both [ ] Any other [ ]
39] Do you think the facility you are attending is offering you the best care? Yes [ ] No [ ]
40] If no above, what else can they do?

.....……

……

41] Where do you get your drugs from?
Hospital [ ] Chemist [ ] Herbalists [ ] Others (specify)…….

42] Do you have a problem taking your drugs? Yes [ ] No [ ]

## Appendix III: Interview Schedule for Families

**INSTRUCTIONS**

Do not write your name on the questionnaire.

For the questions with choices please tick appropriate response.

| **Serial No……** |
|---|

**Section A: Social -demographic information**

1] Age……

2] Occupation

Formal employment [ ] Informal employment (Specify)

…….

3] Highest level of education completed

University/College [ ] Secondary [ ] Primary [ ] Never schooled [ ]

4] Religion

Christian [ ] Muslim [ ] Others (specify)……..

5] Relationship with patient

Husband [ ] Father [ ] Son [ ] Brother [ ] Others (specify)……

**Section B: Knowledge**

6] Before you relative was diagnosed with prostate cancer, had you heard of prostate cancer

Yes [ ] No [ ]

7] Indicate which of the following can cause prostate cancer

Demons [ ] Curse [ ] Witchcraft [ ] Genetic [ ] Bad omen [ ]

Others (Specify)……

8] Prostate cancer patients should be treated by

Witch doctors [ ] Religious people [ ] Medical personnel [ ] Herbal practitioners [ ] Others (specify)……

9] Do you know the symptoms of prostate cancer? Yes [ ] No [ ]

10] If yes, what are the symptoms?

……

……

11] Do you understand the treatment your relative is receiving? Yes [ ] No [ ]

12] Please provide an explanation for above response

……

……

**SECTION C: Outcome of Prostate cancer diagnosis**

13] Did you believe when you were told your relative has prostate cancer? Yes [ ] No [ ]

14] What did the diagnosis of prostate cancer to your relative mean to you?

Disease burden [ ] Normal life [ ] Loss of work [ ] Others [ ]

15] How did the diagnosis of your relative with prostate cancer affect your family role

……

……

16] How has the diagnosis of your relative with prostate cancer affected your work?

……

……

17] Please mark one or more if you agree or not agree with the following statements

| **STATEMENT** | **Strongly agree** | **Agree** | **Not sure** | **Disagree** | **Strongly disagree** |
|---|---|---|---|---|---|
| I have accepted that my relative has prostate cancer. | | | | | |
| It is embarrassing to have a relative who has prostate cancer. | | | | | |
| Prostate cancer diagnosis affects intimacy between couples | | | | | |
| It is shameful to have a relative with prostate cancer | | | | | |
| Persons diagnosed with prostate cancer can have intimate relationships | | | | | |
| Somebody diagnosed with prostate cancer early can be treated and fully recover | | | | | |
| Persons diagnosed with prostate cancer can effectively work | | | | | |
| Prostate cancer is a serious disease | | | | | |
| One can live a normal life after treatment of prostate cancer. | | | | | |
| Somebody diagnosed with prostate cancer is doomed to die | | | | | |

**SECTION D: Health seeking behaviour**

18] Do you take your relative for hospital appointments Yes [ ] No [ ] ] If Yes, proceed to question No. 20

19] If No; why

……

……

20] Do you have a calendar of appointments for your relative Yes [ ] No [ ]

21] If yes above, is it useful to you? Yes [ ] No [ ]

22] If No in question 20, please explain

……

……..……

23] What makes you take your relative to seek health care

…….……

……

24] Do you seek alternative health care services for your relative Yes [ ] No [ ]

25] If yes where?
**.....**

26] In your opinion, do you see your relative's general health improving? Yes [ ] No [ ]

27] If No, what's the problem

……

……

28] How do you pay for your relative's medical expenses?
Out of pocket [ ] Insurance [ ] Harambees [ ]

29] If through insurance, what type of insurance?
NHIF [ ] Company medical insurance [ ] Both [ ] Any other [ ]

30] Do you think the facility you are attending is offering your relative the best care?
Yes [ ] No [ ]

31] If No above, what else can they do?

**.....**……

……

32] Where does your relative get drugs from?
Hospital [ ] Chemist [ ] Herbalists [ ] Others (specify)…….

33] Does your patient have a problem taking his drugs? Yes [ ] No [ ]

## Appendix IV: Focus Group Discussion Guide for Patients

1. What does the cancer of the prostate mean to you?
2. What happened following the diagnosis of prostate cancer?
3. How are you managing your problem?

## Appendix V: Chuka University Research Authorization

CHUKA UNIVERSITY

Telephones: 020 2310512
020 2310518

P.O. Box 109
Chuka

**OFFICE OF THE CHAIRMAN**
**INSTITUTIONAL ETHICS REVIEW COMMITTEE**

**Our Ref: CU/IERC/NCST/18/58** 21st September, 2018

**THE CHIEF EXECUTIVE OFFICER**
**NATIONAL COMMISION FOR SCIENCE, TECHNOLOGY AND INNOVATION**
**P.O. BOX 30623-00100**
**NAIROBI**

Dear Sir/Madam,

**RE: RESEARCH CLEARANCE AND AUTHORIZATION FOR TIMOTHY KINOTI KIRUGIA. REG NO SM20/29069/17**

The above matter refers:

The Institutional Ethics Review Committee of Chuka University met and reviewed the above MSC Research Proposal titled Patients' and Families Perceptions towards Diagnosis of Prostate Cancer in Tharaka- Nithi -County" The Supervisors are Dr. Lucy Gitonga and Dr. Joel Gichumbi

The committee recommended that after candidate amends the issues highlighted in the Attached Research clearance and authorization check list, the permit be issued.

Attached please find copies of the minutes, research clearance and authorization check list for your perusal. Kindly assist the student get the research permit.

Yours faithfully,

**Prof. Adiel Magana**
**CHAIR**
**INSTITUTIONAL ETHICS REVIEW COMMITTEE**
cc: BPGS

**Appendix VI: Ministry of Health Authorization**

# THARAKA NITHI COUNTY GOVERNMENT

## OFFICE OF THE COUNTY DIRECTOR

### DEPARTMENT OF HEALTH SERVICES AND SANITATION

Email: tharakanithicounty2013@gmail.com

P. O. BOX 10
KATHWANA

**REF: TNC/CDH/R/VOL.1/11** **Date: 1st April, 2019**

Kiringia Kinoti Timothy
P O Box 641 – 60400
**CHUKA**

**RE: PERMISSION TO CONDUCT A STUDY**

Following your request for permission to conduct a study and having met all necessary requirements, I am happy to inform you that your request has been granted.

Ensure that you adhere to research ethics as you conduct your research.

I am also requesting the Medical Superintendent Chuka, Magutuuni and Marimanti hospitals to accord you the necessary assistance you may require.

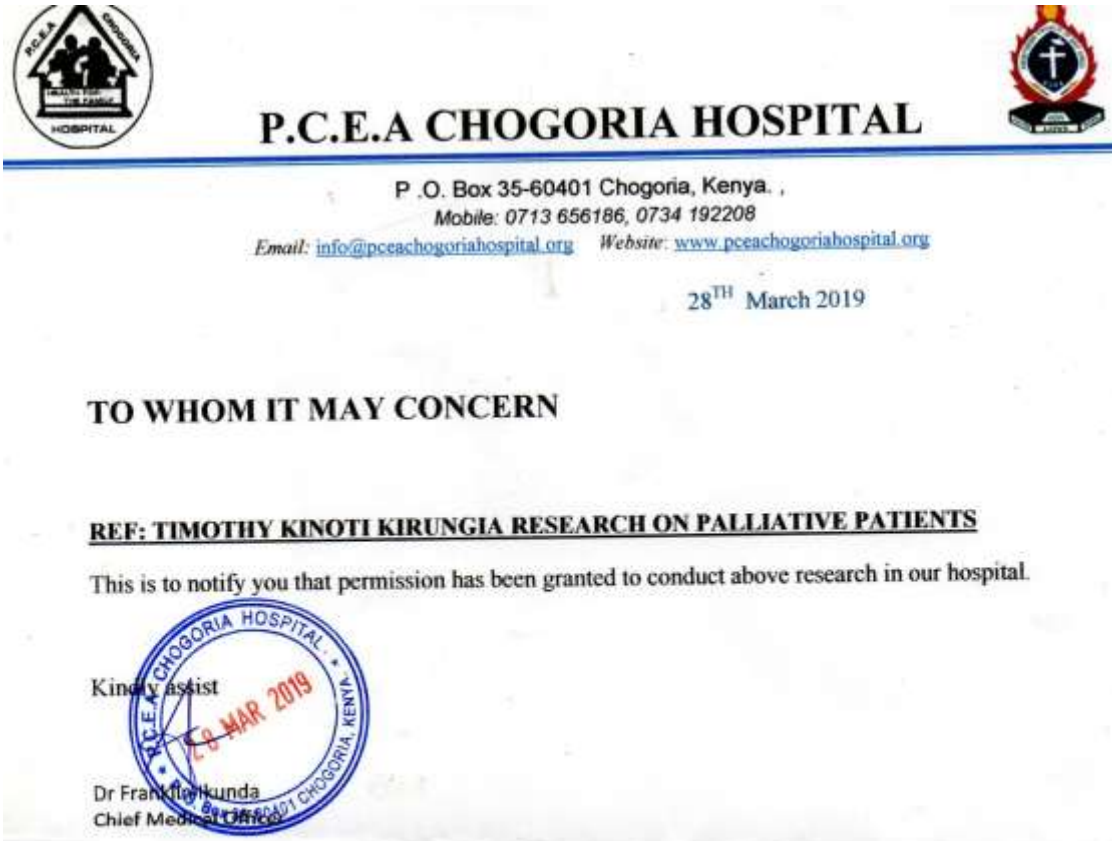
COUNTY DIRECTOR
OF HEALTH
THARAKA NITHI COUNTY

**John M Mbogo**
Ag. **COUNTY DIRECTOR –HEALTH SERVICES AND SANITATION**

**CC**

- CECM - Health Services and Sanitation
- Chief Officer Medical Services
- Chief Officer Public Health and Sanitation

## Appendix VII: Chogoria Mission Hospital Permit



# P.C.E.A CHOGORIA HOSPITAL

P .O. Box 35-60401 Chogoria, Kenya. ,
*Mobile: 0713 656186, 0734 192208*
*Email:* info@pceachogoriahospital.org *Website:* www.pceachogoriahospital.org

28TH March 2019

**TO WHOM IT MAY CONCERN**

**REF: TIMOTHY KINOTI KIRUNGIA RESEARCH ON PALLIATIVE PATIENTS**

This is to notify you that permission has been granted to conduct above research in our hospital.

P.C.E.A CHOGORIA HOSPITAL
28 MAR 2019
P.O. Box 35-60401 CHOGORIA, KENYA

Kindly assist

Dr Frank Nkunda
Chief Medical Officer

## Appendix VIII: NACOSTI Research Authorization


**NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION**

Telephone:+254-20-2213471,
2241349,3310571,2219420
Fax:+254-20-318245,318249
Email: dg@nacosti.go.ke
Website : www.nacosti.go.ke
When replying please quote

NACOSTI, Upper Kabete
Off Waiyaki Way
P.O. Box 30623-00100
NAIROBI-KENYA

Ref: No. **NACOSTI/P/19/34010/27121**

Date: **17th January, 2019**

Kinoti Timothy Kirungia
Chuka University,
P. O. Box 109-60400
**CHUKA.**

**RE: RESEARCH AUTHORIZATION**

Following your application for authority to carry out research on ***"Patients' and families' perceptions towards diagnosis of prostate cancer in Tharaka Nithi County, Kenya"*** I am pleased to inform you that you have been authorized to undertake research in **Tharaka Nithi County** for the period ending **17th January, 2020.**

You are advised to report to **the County Commissioner, the County Director of Education and the County Director of Health Services, Tharaka Nithi County** before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit **a copy** of the final research report to the Commission within **one year** of completion. The soft copy of the same should be submitted through the Online Research Information System.

**GODFREY P. KALERWA MSc., MBA, MKIM**
**FOR: DIRECTOR-GENERAL/CEO**

Copy to:

The County Commissioner
Tharaka Nithi County.

The County Director of Education
Tharaka Nithi County.

## Appendix IX: NACOSTI Research Permit

THIS IS TO CERTIFY THAT:
*MR. KINOTI TIMOTHY KIRUNGIA*
of CHUKA UNIVERSITY, 0-60400
CHUKA,has been permitted to conduct
research in *Tharaka-Nithi County*

on the topic: *PATIENTS' AND FAMILIES' PERCEPTIONS TOWARDS DIAGNOSIS OF PROSTATE CANCER IN THARAKA NITHI COUNTY, KENYA*

for the period ending:
*17th January,2020*

Permit No : NACOSTI/P/19/34010/27121
Date Of Issue : 17th January,2019
Fee Recieved :Ksh 1000

.....
*Applicant's Signature*

.....
*Director General*
*National Commission for Science, Technology & Innovation*