AWARENESS ON PROSTATE CANCER AND SCREENING PRACTICES AMONG MEN ATTENDING OUTPATIENT AT KIGALI UNIVERSITY TEACHING HOSPITAL, RWANDA.

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A dissertation submitted in partial fulfillment of the requirements for the degree of Master of Science in Nursing (Oncology Track)

College of Science and Midwifery

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June, 2019
DECLARATION

I declare that this dissertation submitted in partial fulfillment of the requirements for the degree of Master of Science in nursing, at the University of Rwanda/College of Medicine and Health Sciences, is my original work and has not previously been submitted elsewhere. Also, I do declare that a complete list of references is provided indicating all the sources of information quoted or cited.

BENURUGO, Genevieve

Signed…………….
DEDICATION

To my almighty God for his unlimited love and protection, forgiveness and favor he gives to me for my daily life. To my beloved husband BUHURU peter Celest in for his overwhelming moral support, understanding and encouragement he offered to me during this difficult journey.

To my children UWIMANA ISHIMWE Assumpta, TETA, Happy Celeste and SHEMA MPORE Peter Bright for their kindness and psychological support .

To my late parents for their encouragement to be strong despite many obstacles in life.
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ABSTRACT

Background: Prostate cancer is a common cancer among men worldwide. It is estimated to be the second of all under diagnosed cancer and it is ranged the sixth among the cause of cancer mortality worldwide. According to the Rwanda demographic survey done in 2017, prostate cancer mortality was 1.5 per 100,000 populations. The sensitization related to prostate cancer awareness and its screening needs to be encouraged among adult men to avoid late consultation and reduce prostate cancer morbidity and mortality.

Aim: To assess awareness and screening practices of prostate cancer among adult males 40 years old and above, attending outpatient by referral at Kigali university teaching hospital (CHUK).

Methodology: A quantitative, descriptive cross-sectional design study. A systematic random sampling technique was used to select 257 adult males, who participated in the study. Participants were chosen from among the men who consulted urology and general surgery services at University Teaching hospital of Kigali (CHUK), during 8 weeks of the study period.

Results: Among 257 participants in the study, the great proportion of respondents ranged between 51 to 60, (43%). 80% of the respondents were aware of prostate cancer existence. (77%) reported the health provider as being the major source of the information. Knowledge on various domains was low, (64%) of the respondents were not aware of the risk factors of prostate cancer. (32%) did not know the prevention measures of prostate cancer. (64%) of the respondents were aware of prostate cancer screening using PSA exam, (49%) of the respondents had undergone screening by performing PSA exam. Overall prostate cancer awareness, and prostate cancer screening practice was (75%) and (49.5%) respectively. Having a university level education was significantly associated with P Ca awareness and screening practices (p<0.004), and working in public institutions had a strong correlation to Prostate cancer awareness and screening practice (p<0.000).

Conclusion: The level of awareness of prostate cancer was high while knowledge on some areas was low. Screening practices were found to be poor, almost half of participants did not perform PSA test. There is a need to improve health education to the community regarding prostate cancer to enhance knowledge and increase the rate of screening.
# Table of Contents

DECLARATION .................................................................................................................. i
DEDICATION .................................................................................................................... ii
ACKNOWLEDGEMENT ..................................................................................................... iii
ABSTRACT ....................................................................................................................... iv
LIST OF TABLES ............................................................................................................... x
LIST OF FIGURES ........................................................................................................... xi
LIST OF ANNEXES .......................................................................................................... xii

1. ............................................................... ................................................................. xii

CHAPTER ONE: INTRODUCTION ............................................................................... 1
  1.1. INTRODUCTION ................................................................................................. 1
  1.2. BACKGROUND .................................................................................................... 1
  1.3. PROBLEM STATEMENT ..................................................................................... 3
  1.4. AIM OF THE STUDY .......................................................................................... 4
  1.5. RESEARCH OBJECTIVES .................................................................................. 4
  1.6. RESEARCH QUESTIONS ...................................................................................... 4
  1.7. SIGNIFICANCE OF THE STUDY ........................................................................ 4
      1.7.1. IN NURSING PRACTICE ............................................................................ 4
      1.7.2. IN NURSING EDUCATION ....................................................................... 5
      1.7.3. IN NURSING ADMINISTRATION ............................................................... 5
      1.7.4. IN NURSING RESEARCH ......................................................................... 5
  1.8. DEFINITION OF CONCEPTS ............................................................................. 5
  1.9. STRUCTURE/ORGANIZATION OF THE STUDY ................................................. 6
  1.10. CONCLUSION TO CHAPTER ONE ................................................................. 6

CHAPTER TWO: LITERATURE REVIEW ..................................................................... 7
  2.1. INTRODUCTION ................................................................................................. 7
  2.2. THEORETICAL LITERATURE .......................................................................... 7
      2.2.1. PROSTATE CANCER .................................................................................. 7
      2.2.2. PROSTATE CANCER SYMPTOMS .............................................................. 7
2.2.3. PROSTATE CANCER AWARENESS ................................................................. 7
2.2.4. PROSTATE CANCER SCREENING PRACTICES ........................................... 8
2.3. EMPIRICAL LITERATURE .............................................................................. 9
  2.3.1. PREVALENCE OF PROSTATE CANCER .................................................. 9
  2.3.2. THE LEVEL OF PROSTATE CANCER AWARENESS ................................ 10
  2.3.3. THE LEVEL OF PROSTATE CANCER SCREENING .................................... 10
  2.3.4. THE FACTORS ASSOCIATED TO AWARENESS AND ITS SCREENING ...... 11
2.4. CRITICAL REVIEW AND GAP IDENTIFICATION LITERATURE .................... 12
2.5. THEORETICAL FRAMEWORK .................................................................... 12
CHAPTER THREE: METHODOLOGY ............................................................... 15
  3.1. INTRODUCTION .......................................................................................... 15
  3.2. RESEARCH DESIGNS ................................................................................ 15
  3.3. RESEARCH APPROACH ............................................................................ 15
  3.4. RESEARCH SETTING .................................................................................. 15
  3.5. STUDY POPULATION ................................................................................ 16
  3.6. SAMPLING CRITERIA ................................................................................. 16
    3.6.1 Inclusion criteria ..................................................................................... 16
    3.6.2 Exclusions criteria ................................................................................... 16
    3.6.3. SAMPLE SIZE ....................................................................................... 16
    3.6.4. SAMPLING STRATEGY ......................................................................... 17
  3.7. VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT .................... 19
    3.7.1. Validity OF THE RESEARCH INSTRUMENT .......................................... 19
    3.7.2. Reliability of research instrument .......................................................... 20
  3.8. DATA COLLECTION PROCEDURE .............................................................. 20
  3.9. DATA ANALYSIS ....................................................................................... 21
  3.10. ETHICAL CONSIDERATION ...................................................................... 21
  3.11. DATA MANAGEMENT .............................................................................. 22
  3.12. DATA DISSEMINATION .......................................................................... 22
3.13. LIMITATIONS AND CHALLENGES OF THE STUDY ................................................. 22
3.14. CONCLUSION OF CHAPTER THREE ..................................................................... 22

CHAPTER FOUR: RESULTS ......................................................................................... 23
4.1. INTRODUCTION ..................................................................................................... 23
4.2. DEMOGRAPHIC CHARACTERISTIC OF RESPONDENTS ..................................... 23
4.3 PRESENTATION OF FINDING’S AS ALIGNED WITH OBJECTIVES .............. 25
  4.3.1. AWARENESS OF PROSTATE CANCER ......................................................... 25
4.3.2. Overall awareness of prostate cancer ............................................................. 27
4.3.3. PROSTATE CANCER SCREENING PRACTICE ............................................. 28
4.3.4. OVERALL PROSTATE CANCER SCREENING PRACTICE ............................. 30
4.3.5. Association between socio-demographic variables and awareness of prostate cancer .............................................................................................................. 30
4.3.6 ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC VARIABLES A PROSTATE CANCER SCREENING PRACTICE ......................................................... 32

CHAPTER V. DISCUSSION ......................................................................................... 34
5.1. INTRODUCTION ..................................................................................................... 34
5.2. DEMOGRAPHIC CHARACTERISTICS ................................................................. 34
5.3. AWARENESS OF PROSTATE CANCER............................................................... 35
5.4. PRACTICE OF PROSTATE CANCER SCREENING ............................................. 35
5.5. FACTORS ASSOCIATED WITH PROSTATE CANCER AWARENESS AND SCREENING PRACTICE ................................................................. 36

CHAP SIX: CONCLUSIONS AND RECOMMENDATIONS ......................................... 37
6.1. INTRODUCTION ..................................................................................................... 37
6.2. CONCLUSIONS ...................................................................................................... 37
6.3. RECOMMENDATIONS ......................................................................................... 37
  6.3.1 To high level Administration ......................................................................... 38
  6.3.2 To (CHUK) administration .............................................................................. 38
  6.3.3 For nursing practice ......................................................................................... 38
LIST OF SYMBOLS AND ACRONYMES

CHUK: Kigali university teaching hospital
CI: Confidence interval
CMHS: College of Medicine and Health Sciences
IEC: Information Education and Communication
MOH: Ministry of Health
NC: new cases
NCDs: Non communicable Diseases
OPD: Outpatient department
P: P-Value
P Ca: prostate cancer
PSA: Prostate Specific Antigen
SDGs: Sustainable Goals Development
SPSS: Statistical package for Social Sciences
UR: University of Rwanda
USA: United of State of America
WHO: World health organization
## LIST OF TABLES

Table 4.3.1. 1: Distribution of study participants according to awareness of prostate cancer.. 25

Table 4.3.2. 1. Overall awareness of prostate cancer.......................................................... 27

Table 4.3.3. 1 Prostate Cancer Screening Practice ................................................................. 28

Table 4.3.4. 1: Overall prostate cancer screening practice .................................................... 30

Table 4.3.5. 1: Association between socio-demographic variables and awareness of prostate cancer ......................................................................................................................... 30

Table 4.3.6. 2: Association between socio-demographic variables a prostate cancer screening practices. .......................................................................................................................... 32
LIST OF FIGURES

Figure 2.1: Conceptual framework about awareness of prostate cancer and screening practices,
Redesigned from Nakwafila (2017) .......................................................... 14
LIST OF ANNEXES

1. Consent
2. Research Questionnaires
4. Certificate of Completion
3. Ethical clearances
4. Permission to use a study tool
5. Site permission
6. Map
CHAPTER ONE: INTRODUCTION

1.1. INTRODUCTION

Prostate cancer is the common cancers in men, and it is the second leading cause of cancer mortality worldwide. The symptoms of prostate cancer may develop slowly, but some early signs include frequent night urination, hematuria, and difficult, weak and/or painful urination. Uncontrolled risk of developing the disease such as age, race and family history are associated to prostate cancer, however P Ca awareness and early screening may positively affect the life of adult men, and improve their life style (Riboux, 2018).

1.2. BACKGROUND

According to the World Health Organization (WHO) prostate cancer is a common cancer that occurs in men in worldwide. It is estimated to be the second of all under diagnosed cancer in men, and it is ranked the 4th under diagnosed among the causes of cancer in both genders worldwide (Banerjee, 2016). Also, in 2012 it was globally estimated 1,111,700 men were newly diagnosed for prostate cancer (Morlando, Pelullo and Di Giuseppe, 2017). In 2015, Prostate Cancer is estimated to be 220,800 of the new cases in USA, and that is (26%) of the malignancy among males, while estimated 27,540 will result in death. The worldwide problem of prostate cancer is projected to raise 1.7 million new cases and 499,00 death by 2030 due to growth and aging of the worldwide population (Mihammad Naeem Bashir, 2015).

In high income countries prostate cancer continues to be the population challenge, according to the research findings. Black men in America are more affected by prostate cancer; it is estimated to be the second leading condition of cancer mortality among those black males in the United States (Ogunsanya et al., 2017). About 4,450 of the estimated deaths in 2016, ranged it 2.4 times higher in Black men than in Caucasian men. The black male mortality and morbidity rate caused by prostate cancer are highest when compared with other groups of men worldwide (Ogunsanya et al., 2017). Prostate cancer mortality and morbidity cannot be reduced without awareness and screening practices, and lack of prostate cancer awareness and screening
practices was reported in 2017 in Jamaica with moderate prostate cancer knowledge and poor prevention practices (Knowledge, 2017).

In Europe, there were an estimated 400,364 NC reported while number of deaths were 92,328 in 2012. In Italy in 2017, there were reported 3,037,127 under diagnosed cases of cancer while 398,708 were related to prostate cancer, and that huge number is attributed to the aging population and population growth, while 307,500 deaths occurred in Europe in same year (Morlando, Pelullo and Di Giuseppe, 2017). About (29.6%) of men have used PSA-test in Italy, meaning that the level of screening about prostate cancer was very poor and the related sensitization was needed, such as about the risk of prostate cancer and the benefit of prevention (Morlando, Pelullo and Di Giuseppe, 2017)

Prostate cancer screening is a need worldwide regardless of any disparities. The men of a certain age must be encouraged to have a checkup every year. A study about incidence of prostate cancer in Africa was conducted and results show that in 16 African countries the PCa incidence rate were 22 to 23.97 per 100,000 of the population, while about 19.5 per 100,000 was reported as median incidence rate. The disease is still growing, as well as urbanization, population growth and positive change regarding life expectancy in Africa. (Adeloye, David and Aderemi, 2016)

The poor knowledge about PCa was reported after a study conducted in Sub Sahara /Nigeria, among men older than 40 years, where less than half were aware about prostate cancer (47.5%).(Ojewola et al., 2017). Black men in South Africa have poor access to prostate cancer diagnostic services and consult very late. Per 100,000 populations, only 14 black men were histological diagnosed with prostate cancer compared to 40.1/100,000 of the white males in south Africa . (Mofolo et al., 2015). According to the Rwandan demographic survey 2017, the mortality rate was 1.5/100,000 population. In 2014, WHO reported that in Rwanda, among 2700 of cancer deaths, (16.3%) were caused by prostate cancer and that prostate cancer was not among the NCDS listed for screening and awareness in Rwanda (WHO, 2014). The lack of adequate knowledge demonstrates a need to be addressed in order to improve diagnosis and adequate treatment of prostate cancer in low income countries.
1.3. PROBLEM STATEMENT

Worldwide, a common malignancy that occurs in men is prostate cancer. It is estimated to be the second of all under diagnosed cancer and is ranked the 4th among the cause of cancer in both gender worldwide (Banerjee, 2016). It has been revealed that Prostate cancer statistics increase due to risk factors such as old age, inadequate diet, obesity, tobacco use, poor economy, lack of physical inactivity, alcohol consumption, and ethnicity (Ogunsanya et al., 2017). According to the Rwanda demographic survey, prostate cancer mortality was 1.5/100,000 of the population, while 320 patients have been operated on in 2014 (Health Ministry Information System, 2015).

Prostate cancer is noted as one of the important cause of morbidity and mortality among men in Rwanda, according to Globocan 2018, 31.9%/100,000 population, with 24.4%/100,000 mortality rate. For many years, screening for early detection of prostate cancer has been an important intervention tool in health (Gobocan 2018). In 2014, WHO reported that in Rwanda, among the 2700 cancer deaths, 16.3% was caused by prostate cancer (WHO, 2014). However, the poor knowledge of prostate cancer and the lack of screening practices among men is a risk for the rising of this disease in Rwanda. In addition the lack of enough studies in the country impacts negatively the outcome of prostate cancer among adult men, and the prevalence continues to increase considerably (Rwanda Ministry of health, 2014). In Rwanda P Ca was confirmed to be among the most common cancer in men, and it was among planned cancer for people awareness since 2014-2019 (Government of Rwanda, 2019). Despite all effort made by the Ministry of Health in Rwanda to reduce non communicable diseases through health workers training, NCDs week, mass screening, tobacco week; prostate cancer has no specific program regarding awareness and screening practices in Rwanda (WHO, 2014).

In Rwanda, no study has been done about prostate cancer awareness and its screening practices. We suppose that the increased of P Ca statistic in Rwanda may be due to the lack of adequate awareness, and late screening related to many factors. For that reason there is a need to conduct this study about assessment of awareness and screening practices of prostate cancer among men attending outpatient in selected referral hospital / Kigali university teaching hospital.
1.4. AIM OF THE STUDY
To assess prostate cancer awareness and screening practices among adult males attending outpatient department at Kigali university teaching hospital.

1.5. RESEARCH OBJECTIVES
- To determine level of awareness of prostate cancer among adult males attending OPD/CHUK.
- To describe Prostate cancer screening practices among adult males attending OPD/CHUK.
- To establish the factors associated to prostate cancer awareness and screening among adult males attending OPD/CHUK.

1.6. RESEARCH QUESTIONS
- What is the level of awareness about prostate cancer among adult males attending OPD/CHUK?
- What are screening practices regarding prostate cancer among adult males attending OPD/CHUK?
- What are the factors associated to prostate cancer awareness and screening among adult males attending OPD/CHUK?

1.7. SIGNIFICANCE OF THE STUDY
The main objective of this study is to assess prostate cancer awareness and screening practices among adult males attending outpatient in Kigali University Teaching Hospital. Prostate cancer is a worldwide issue which affects negatively the health of the population in all aspects. The patients consult the hospital very late and the morbidity and mortality related to prostate cancer is very high in Rwanda (WHO 2014). This study has been conducted because prostate cancer being among those NCDs which are increasing worldwide and causing deaths in the global population.

1.7.1. IN NURSING PRACTICE
The finding from this study will be evidence based in clinical practice to advocate for and benefit patients with prostate cancer, and to encourage them towards life style changes.
1.7.2. IN NURSING EDUCATION

The results from this study will provide a foundation for establishing educational and practice initiatives and strategies to improve care of the patient with prostate cancer. The data and information produced will also be used for developing policies for control and prevention of prostate cancer in Rwanda.

1.7.3. IN NURSING ADMINISTRATION

The results from this study will be supportive to SDGs strategies, specifically to gender equality, by contributing to awareness of prostate cancer prevention measures among adult males and will be useful in facilitating the decision makers at all levels of the health system, to institute and enhance the new screening and awareness strategies for prostate cancer across the country.

1.7.4. IN NURSING RESEARCH

Based on the findings and the results of this study, the recommendations will encourage health care providers to perform further studies on prostate cancer for better management.

1.8. DEFINITION OF CONCEPTS

This section defines key terms used in research topic for prostate cancer awareness and screening practice among adult male clients.

Cancer: When body cells start to grow in an uncontrolled way. Any body cell can become a cancer cell and reach and spread to other parts of the body. (Force, Services and Force, 2013)

Prostate cancer: The male gland found below the bladder near the rectum is called prostate; it is a small gland that makes fluid to carry sperm. The size can change and become larger in older men. When body cells in the prostate are growing in an uncontrolled manner it is the beginning of prostate cancer. (Force, Services and Force, 2013).

Awareness: Is defined as a state of knowing, or clearly understanding the condition of something, or being aware that the problem exists. It is disease related education and information given to consumers for reducing mortality and morbidity (20medicinal, 2014). According to American, awareness is to give potential information to the person concerned related to prostate cancer (Almuhanna et al., 2018).
In the current study awareness was considered as having heard information, and knowing about prostate cancer, related to the symptoms, risk factors and prevention.

**Screening practices:** Screening practices is a method used in medicine, and applied to an individual. To investigate the possible presence of undiagnosed disease before a person in good health is showing symptoms. With the goal of making early detection and improving survivals. (Baghdadi, 2017)

In the current study, the practice of prostate cancer screening puts emphasis on performing PSA rectal exam and investigating clinical manifestations.

**1.9. STRUCTURE/ORGANIZATION OF THE STUDY.**

This research dissertation is mainly composed by two parts. The first part consists of preliminary pages made by title page, declaration, acknowledgements, abstract, table of contents, a list of symbols and abbreviations/acronyms, a list of tables, a list of figures and annexes. The second part consist of chapter one for introduction, chapter two for literature review, chapter three for methodology, chapter four for research findings, chapter five for the discussion, chapter six for the conclusion and recommendations, references and appendices.

**1.10. CONCLUSION TO CHAPTER ONE**

Prostate cancer is a common cancer among men, and it is the second leading cause of cancer mortality. The lack of adequate awareness and screening practices demonstrates the needs to be addressed in order to improve quality of life of adult men. This chapter demonstrated the background of the study, problem statement, the aim of the study. It includes the objectives of the study, research questions and significance of study, definition of concepts and structure/organization of study. This oriented the researcher on scope of the research by clarifying the objectives that the research needs to achieve according to the background of the research problem.
CHAPTER TWO: LITERATURE REVIEW

2.1. INTRODUCTION.
According to the Oxford Dictionary: literature is defined as a written work, the term originates from the Latin noun (letter) as the entire body of writing (Baghdadi, 2017). Literature reviews orient the researcher in the topic area and provides understanding, before starting the study to discover what is known and what is not known. It contains information from reviewed articles, journals, books, and google searches. In this research, armed to assess awareness and screening practices of prostate cancer, the researcher has consulted the existing literature before conducting this work guided by an adapted concept frame work from Nakwafila (2017).

2.2. THEORETICAL LITERATURE

2.2.1. PROSTATE CANCER
The male gland found below the bladder near the rectum is called the prostate; it is a small gland that makes fluid to carry sperm. Normally, cells multiply and die in an orderly way, helping us to grow, replacing worn-out tissue and healing injuries. Sometimes something goes wrong and the cells grow out of control. The result may be a mass called a tumor or abnormal blood cells, such as leukemia. When body cells in the prostate are growing in an uncontrolled manner it is the beginning of prostate cancer. Any body cells can become cancer cells and reach other parts of the body (Force, Services and Force, 2013).

2.2.2. PROSTATE CANCER SYMPTOMS.
Prostate cancer has no symptoms in early stage. According American cancer society p ca may cause difficult and frequent urination, erectile dysfunction, pain in lower back, pain in lower pelvic area, and blood in urine (hematuria) (American Cancer Society, 2016).

2.2.3. PROSTATE CANCER AWARENESS
Prostate cancer is a frequently diagnosed cancer. According to the American Cancer Society 220,800 was the incidence estimated in 2015. However, this number can’t be addressed without an awareness program regarding prostate cancer (Leonard, Wells and Brandler, 2017). Awareness is defined as a state of knowing, or clearly understanding something’s condition or being aware
that the problem exists. Prostate cancer awareness may be done through social media, by health professionals, cancer control professionals, coalition community based organizations, and any stakeholders, by delivering information regarding the risk factors, symptoms of Prostate cancer, prevention, screening modalities and the benefits of early detection of PCa (Center of Disease Control and Prevention, 2017).

2.2.4. PROSTATE CANCER SCREENING PRACTICES

Prostate cancer is a common illness occurring in men worldwide. The American Cancer Society recommend the prostate specific antigen test (PSA), and digital rectal (DRE) examination, as the common screening modalities for Prostate cancer. The study has shown its significant benefits in reduction of prostate cancer mortality (Almuhanna et al., 2018). Screening is a tactic used in medicine and applied to an individual to determine the possible presence of undiagnosed disease, before noting symptoms in a person with good health. It is also early performed in community to identify the kind of disease land to enable its management and to reduce cancer mortality rate (Knowledge 2017). PSA is a protein found in the blood of men and is measured using a blood test (PSA). A detected high PSA protein level in the blood may be caused by prostate cancer or by other prostate issues such as increased prostate gland size or gland inflammation. A biopsy may follow if the high level of PSA is identified in the blood(Force, Services and Force, 2013)

2.2.5. THE RISK FACTORS OF PROSTATE CANCER

The risks factors are same things that give chance to the body to develop any disease, but having a risk factor doesn’t mean the development of the disease. American Cancer Society confirms that the cause of prostate cancer is not known. However, it predict some risk factors that may be associated with the disease, including old age. PCa rarely develops before 40 years old, but the risk of getting it increasingly occurs as men age (American Cancer Society, 2016). Increased prevalence of risk factors associated with economic development was reported this conducts to greater consumption of animal fats, excess body weight, refined sugar, lack of fruits and vegetables, smoking and physical inactivity are also associated with Prostate cancer morbidity and mortality and those must be modified to reduce prostate cancer (Ogunsanya et al., 2017). Family history also was reported as prostate risk factor, may be 2 to 3 times more
probable to get prostate cancer if his father, brother, or son had the diagnosis. According to American Cancer Society the family history is an important risk factor for prostate cancer and the age of relatives diagnosis must be considered (American Cancer Society, 2016).

2.3. EMPIRICAL LITERATURE

2.3.1. PREVALENCE OF PROSTATE CANCER

Worldwide, cancer is causing a number of deaths in countries of all income levels. As the population life styles change and grow rapidly, we see cancer cases and death growing (Torre et al., 2016). According to WHO, in 2012, there were 14.1 million worldwide estimated new cancer cases, and among those, 8.2 million resulted in deaths. Prostate cancer is the most common malignancy occurring in men, and it ranked the second of all diagnosed cancers and and globally it represent the 4th leading cancer mortality rate in both genders worldwide (Banerjee, 2016). Morlando, Pelullo and Di Giuseppe, 2017, confirmed that prostate cancer NC diagnosed were 1,111,700 while 307,500 were reported deaths in 2012 worldwide (Morlando, Pelullo and Di Giuseppe, 2017). According to the research, prostate cancer continues to cause death in high income countries, for example in USA /Jamaica prostate cancer were most important with incidence rate of 78.1/100.000, and an estimated of 53.9/100.000 mortality rate. It is estimated that in 2019 the new cases may be 174,650 while the deaths per year are 31,620 (Riboux, 2018).

According to the researchers, 400,364 were the estimated new cases and 92, 328 was the mortality rate reported in 2012 in Europe. In 2015 the study reported that 3,037,127 Italians were under diagnosed with prostate cancer, and about 398,708 were diagnosed with having prostate cancer (Morlando, Pelullo and Di Giuseppe, 2017). While in Asia the prostate cancer prevalence rate still low (Torre et al., 2016). Prostate cancer in low income countries is also counted, such as in 2012 an estimated 57% (8 million) of the new cancer cases, 65% (5.3 million) of the cancer deaths, and 48% (15.6 million) of 5-years prevalent cancer cases were reported. Prostate cancer has been reported among the types of cancer as the second most prevalent cancer in men and fourth among cancers affecting both sexes (Kangmennaang, Mkandawire and Luginaah). A Study about incidence of prostate cancer in Africa was conducted and results show that in 16 African countries PCa incidence rate was 22 to 23.97 per 100,000 population, while about 19.5 per
100,000 was reported as median incidence rate. The burden is still growing as well as urbanization, population growth, and positive change regarding life expectancy in Africa (Adeloye, David and Aderemi, 2016). Globoca 2018 reported that 707 (15.6%) were new cases, 5.7% was estimated death of prostate cancer, 5.7% in Rwanda (Registry, 2019).

2.3.2. THE LEVEL OF PROSTATE CANCER AWARENESS

According to the results from the study conducted in Sokoto Nigeria among 300 participants, only 15 (5.0%) had awareness about prostate cancer (Awosan et al., 2018). In 2016 the finding of a study conducted in Nigeria, 60.4% of the participants had heard about prostate cancer and 53.0% had the information from the media. While the same Nigerian study conducted in urban population among civil servants has shown that 78.8% of participants have never heard about prostate cancer (Ai et al., 2016). This gap related to awareness and poor screening of prostate cancer may be contributed to lack of doctors sensitization about the disease.

Within the same study was reported that 51.3% had poor knowledge, 44.8% had fair knowledge and only 3.9% had good knowledge related to prostate cancer. While in a Ugandan study 10.3% of respondent had a good knowledge of the symptoms of prostate cancer. This explain the lack of information about PCa (Ai et al., 2016). In South Africa the cross section study done among men aged 35 years old has reported that only 45.7% had heard about prostate cancer, while this is not known in Rwanda.

2.3.3. THE LEVEL OF PROSTATE CANCER SCREENING

The study done in 2014 comparing U.S born black males and Caribbean-born black have shown that 50 (43%) U.S born black born males against 34 (37%) Caribbean born black males received prostate cancer screening with PSA testing (Cobran et al., 2014).

The study performed in Turkey among men 40 years old and beyond has shown that 76.2% did not have a prostate examination; only 23.8% of participants experienced a prostate examination. The proportion of those who did the PSA test was very low (21.2%) (Bilgili, 2019).

A cross section study done among black men from US, Nigeria and Cameroon had shown that the higher scores of participants had difficulty in engaging in specific prostate cancer prevention.
and early detection activities (Ogunsanya et al., 2019). According to Ernest et al. 2017, among 556 men respondents only 45 (8.1%) reported that they had been screened for prostate cancer (Ernest et al., 2017). According to a Rwanda demographic survey 2017 the mortality rate was 1.5 per 100,000 population. In 2014, WHO reported that in Rwanda, among 2700 of cancer death, 16.3% were caused by prostate cancer, and prostate cancer was not among the NCDS listed for screening nor for awareness in Rwanda (Organization, 2014). This explains the need for continued campaign on prostate cancer; its risk and symptoms using health providers and social media. Globocan 2018 reported that 707 (15.6%) were new cases, 5.7% were estimated deaths of prostate cancer, 5.7% in Rwanda (Registry, 2019) but there is no screening program related to this men’s disease.

2.3.4. THE FACTORS ASSOCIATED TO AWARENESS AND ITS SCREENING.

In high income countries the factors contributing to cancer awareness and its screening practices are not very far from those from low income countries. The study done at the University of Texas among young black men had indicated a positive health screening experience among participants with higher education (19%) of all participants. And the same study had reported that the residents in a rural setting, with economic and culture limitation, were impacted by a low knowledge of PCa screening. 50.6% were from urban (Ogunsanya et al., 2017). Physician sensitization was 52.9%. Newspapers, and television may also be the sources of information about PSA (Morlando, Pelullo and Di Giuseppe, 2017). According to Nicer (2015) the age at diagnosis was restricted to 35-100 and beyond.

In Namibia in 2013, the study done has reported that having health insurance (32%) contributes to early prostate cancer screening. It confirms also that the older age group 50-54 are more likely to have test for prostate cancer than men aged between 40-44 and it shows that the urban men are more informed than men residing in rural area at 51%. Also education has been evidenced as a positive (only 39%) that it contribute in prostate cancer screening by this study. (Kangmennaang, Mkandawire and Luginaah, 2016). Increased prevalence of risk factors associated with economic development, such as consumption of animal fats, excess body weight, and physical inactivity must be modified to reduce the incidence of prostate cancer (Ogunsanya et al., 2017). In Africa
prostate cancer is the most common type of cancer in men but its testing is uncommon because of poor medical awareness, diagnostic facilities, well trained health care providers, and PSA testing. For those reasons, it continues to be a leading cause of mortality in low income generation countries. (Kangmennaang, Mkandawire and Luginaah, 2016).

2.4. CRITICAL REVIEW AND GAP IDENTIFICATION LITERATURE.

The gap identified during this work is the lack of locally published articles related to prostate cancer awareness and screening practices and there is no clear local program identified regarding prostate cancer awareness and screening practice. For that reason we were encouraged to conduct this research.

2.5. THEORETICAL FRAMEWORK

The theoretical framework is the most important aspect in the research process. It clarifies the structure and the vision for a study, it is like house that cannot be constructed without blueprint. Without a theoretical framework, the structure and vision for a study is unclear (Grant and Osanloo, 2014). The concept framework offers also a logical structure of connected concepts that provide a picture of how ideas in the study relate to one another within the theoretical framework. (Grant and Osanloo, 2014). This study had adapted the conceptual framework about knowledge, attitudes and uptake of screening practice toward prostate cancer from Nakwafila(Nakwafila, 2017). This framework guides the researcher to show factors influencing awareness of prostate cancer and relationship between awareness and screening practices related to prostate cancer. It is composed by three variables related to research objectives:

1. Added concept related to awareness of prostate cancer, in this study they are linked with the prostate cancer symptoms, risk factors and its prevention.

2. Added concept related to prostate cancer screening practice, in this study this is linked with Prostate Specific Antigen test and Digital Rectal Examination.

3. Modified individual characteristic factors such as age, family history, marital status, level of education, residence, occupation and health insurance which may influence personnel awareness and screening practices regarding prostate cancer.
Various studies confirm the significance and importance of economy for being more aware and screening or not about prostate cancer. There is some evidence of the effectiveness of organized screening and awareness in reducing prostate cancer mortality (Booth et al., 2018). The researchers have shown high income countries are more aware about prostate cancer than low income countries (Cobran et al., 2014). According to American cancer society the individuals of high risk must receive all important information about screening benefits and PCa risk by the age of 40 years old (Almuhanna, Alshammari and Alsalman, 2018). However, the older age groups also influence the screening and awareness on prostate cancer. (Mofolo et al., 2015) And the other study had reported that the residents in rural settings, with economic and culture limitation, are impacted by a low knowledge of PC screening compared to those living in urban settings. (Ogunsanya et al., 2017). The increased consumption of animal fat, excess body weight, family history, environment and physical inactivity are also associated with the high prevalence of prostate cancer (Ogunsanya et al., 2017). History of poor education, poor medical knowledge, and trained health care providers influence the awareness and screening of prostate cancer (Paul, 2014).
Figure 2.1: Conceptual framework about awareness of prostate cancer and screening practices, Redesigned from Nakwafila (2017)

Demographic factors
1. Age
2. Family history
3. Marital status
4. Level of education
5. Occupation
6. Residence
7. Health Insurance

Lifestyle risk factors
1. Smoking
2. Diet (animal fat, low fibers)
3. Sedentarily
4. Obesity

Symptoms of prostate cancer
1. Frequent urination
2. Difficulty of urination
3. Erectile dysfunction
4. Pain in lower back
5. Pain in lower pelvic area
6. Hematuria

Prostate cancer awareness

Prostate cancer practice

PCa screening
1. PSA test
2. Digital Rectal Exam
CHAPTER THREE: METHODOLOGY

3.1. INTRODUCTION
The methodology helped in organizing and analyzing data. It contains research design, research approach, research setting, Study population, sampling strategy, sample size, inclusion criteria, exclusion criteria, data collection instrument, reliability and validity, ethical consideration, data collection procedure, how data was collected and the study limitation.

3.2. RESEARCH DESIGNS
Research design is a very important part that the researchers utilize to respond to their research question and overcome same challenges. It guides the researcher in planning and provides specific direction for procedures during the research study in order to achieve the goals (Creswell, 2013). In this study, Descriptive, cross section design was used to obtain explanation from the participants. The cross section is defined as non-experimental study design by which the investigator collects data one time in given period (Creswell, 2013).

3.3. RESEARCH APPROACH
The quantitative approach helps the researcher to describe individual phenomena and test relationships between variables. It should be calculated using numbers and statistics. It helps to gain knowledge or confirm the existing for more understanding (Creswell, 2013). This study was quantitative as it used a structured questionnaire to collect quantitative data. Therefore a quantitative approach was appropriate for this study because it was characterized by the collection data which was analyzed quantitatively and the results were presented using statistics and tables. The study was quantitative as the purpose was to describe the participant’s awareness and screening practice related to prostate cancer. It also established the factors associated to awareness and screening practices of prostate cancer.

3.4. RESEARCH SETTING.
This study was conducted in Rwanda at the university teaching hospital of Kigali CHUK) Kigali city, Nyarugenge district, Nyarugenge sector. It is situated at a few meters from Serena Hotel. It was built in 1918, from when it serves as a health center. In 1965 becoming the hospital of Kigali .CHUK was awarded a status of a referral and reaching hospital on 7th December 2000 by the
low No 41/2000; it has capacity of 472 beds. The CHUK has 384 Nurses. It provides training to academic students and technical support to district hospital. Actually, after corporate division, it composed by the clinical division which includes clinical departments such as surgical, medical, gynecology and obstetrics, accident and emergency, pediatric and neonatology, critical care and out patients, allied department such as laboratory, physiotherapy and imaging department.

3.5. STUDY POPULATION
According to Creswell (2013) the population is the number of participants with the same characteristic that attracts the research and that took part in the study and on which the research findings were generalized. The target population is the group of people with the same characteristics that may help to conduct a research. The target populations of this study were the adult men aged 40 years and above who consulted urology and general surgery of outpatient CHUK at the time of data collection.

3.6. SAMPLING CRITERIA

3.6.1. Inclusion criteria
The inclusion criteria was the 40 year old and above males who attended one time in outpatient urology and general surgical services at CHUK and who are able to give verbal and signed consent one time to participate in this study in period of data collection.

3.6.2. Exclusions criteria
This study excluded all males under 40 years old. The patients consulting other services were not a concern and patients who refused to participate in this study were not included. It excluded certainly all men with a mental disorder and those who are not able to give verbal consent and sign the written consent.

3.6.3. SAMPLE SIZE
From the CHUK outpatient record, 2400 were consulted in urology while 1920 were from general surgery. The total estimated 4320 have been consulted in urology and general surgery services in consecutive twelve months from July 2016 to June 2017. The patients consulted in one month are estimated to be 360 patients for both services. Among 360 patients in one month, there were 200 urology consults while 160 consults were from general surgery.
Based on the above records the researcher can assume that urology service may approximately consult 400 patients during two months while general surgery may consult 320 patients during the same period of data collection. An estimated 720 patients over 40 year’s old attended urology service and general surgery during two months from November 2018 to December 2018.

For this study the sample size was determined based on the Simplified formula/Taro Yamane 1967 for proportions with finite population.

\[
n = \frac{N}{1 + N \times e^2}
\]

\( n = \) the sample size
\( N = \) the population size
\( e = \) the acceptable sampling error

95% confidence level and \( p = 0.5 \) are assumed . (Polonia, 2013)

\[
n = \frac{720}{1 + 720(0.05)^2}
\]

\( n = 257 \)

The researcher used a sample of 257 patients

### 3.6.4. SAMPLING STRATEGY

Sampling is a process by which the researcher chooses a fraction of the target population as the representative study population. Working with a sample rather than with the large population offers more cost effectiveness and practical strategy in research (Creswell, 2013). Probability sampling is a sampling method that uses some form of random selection in order that all participants have equal chance of being selected (Sharma, 2017). Systematic random sampling is a probability sampling technique using the procedure to select the participants, wherein each participant has the same chance of being selected from the population, ensuring that the sample can be representative of the population (Creswell, 2013).
During the data collection period all men within the age category were selected in open clinic. After briefing and giving information related the study, the first participants were selected randomly. Then every third participant was systematically selected in general surgery and in urology. The chosen participants were shifted to the interview room. Every day of consultation adult men who attended the chosen services and who were involved in this study were briefed on what the study was all about and given information on ethical principles that were instituted in the study to protect the participants.

To calculate the interval (K), the average number of men who attended selected services per day was divided by number of men needed in each service. In this study the (K) was 3. Using the lottery method, the starting point was chosen and the next participant was determined by sampling interval meaning that every third participant was systematically selected. After debriefing, the first participant was selected randomly. The selected participants were taken to a room where the interviews took place. When the chosen man did not fulfill the inclusion criteria, the next man was chosen without changing the interval.

**Table 3. 6.4.1.: Sampling strategy of the study participants in selected services of outpatient department**

<table>
<thead>
<tr>
<th>Service</th>
<th>No of men seen in 2 months /2018 in each service</th>
<th>Average men seen daily in each service (previous month)/(8days/months)</th>
<th>men required from each service in 2 month(16days)</th>
<th>men required in each selected Service per day.</th>
<th>sampling interval (K)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General surgical</td>
<td>320</td>
<td>20</td>
<td>120</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Urology</td>
<td>400</td>
<td>30</td>
<td>137</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Total N</td>
<td>720</td>
<td></td>
<td><strong>257</strong></td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>
3.7. VALIDITY AND RELIABILITY OF RESEARCH INSTRUMENT

In this study data was collected using an interview questionnaire respecting all variables. This questionnaire was adopted from one related to assessment of PCa knowledge, attitude and screening practice performed in southern Italy by M. Morlando et al. (Morlando, Pelullo and Di Giuseppe, 2017). In this study the questionnaire was composed by the demographic section, prostate cancer awareness section and screening practices part, both with sub questionnaires adapted.

3.7.1. Validity OF THE RESEARCH INSTRUMENT

In quantitative research, validity is the extent to which any measuring instrument measures what it is intended to measure. Validity is very important in quantitative research. If an instrument measures something which is supposed to be measured, it is called valid. (Fischer et al., 2014). It is the unit to which the result are truthful so that require the questionnaire to measure correctly the variables used in the study and show if the results obtained meet the requirements of the research method. (Mohajan, 2017). The format and content validity of the instruments as whole was reviewed by a group of experts. References to score of items on an instrument are internally consistent and there was consistency in test administration and scoring. (Creswell, 2013)

This questionnaire was also verified for relevance by an expert academic in oncology nursing. Also, the questionnaire was reviewed by the academic supervisors of this research to confirm its utilization.

Table 3. 7.1.1: Content Validity Has Been Used Regarding the Objectives:

<table>
<thead>
<tr>
<th>Research objectives</th>
<th>Concept framework</th>
<th>Research test</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: To determine level of awareness of prostate cancer</td>
<td>Risk factors and symptoms of prostate cancer</td>
<td>Question II Q.A to QJ</td>
</tr>
<tr>
<td>To describe Prostate cancer screening practices</td>
<td>PC a screening • PSA test • Digital Rectal Exam</td>
<td>Question III Q.A to Q.D.</td>
</tr>
<tr>
<td>3: To establish the factors</td>
<td>• Age</td>
<td>Question I.Q.Ato Q.I.</td>
</tr>
</tbody>
</table>
associated to prostate cancer awareness and screening among

- Family history
- Marital status
- Level of education
- Occupation
- Residence
- Health Insurance

3.7.2. Reliability of research instrument

The reliability is defined as the measurement that provides the reliable results with equal values. In quantitative research, reliability measures consistency, stability, and repeatability of results. The finding are considered reliable if consistent results are obtained in the same conditions and in diverse situations (Mohajan, 2017). The questionnaire was rearranged and reviewed by someone to adjust the English language. Then it was submitted to another associate who was fluent in both English and Kinyarwanda to make Kinyarwanda translation. The internal reliability for this questionnaire was assessed during a cross sectional study conducted in southern Italy, among 625 fathers of students attending eight public schools in 2017, and was approved by the ethics committee of the second university of Naples named university of Campania Luigi Vanvitelli (Morlando, Pelullo and Di Giuseppe, 2017).

To identify if the respondents would understand the questions and instructions, and to identify if the meaning was the same for all respondents, before initiating the study the questionnaire was reviewed for content and comprehensibility by a sample of 50 men chosen in orthopedic service. Before using this tool in the Rwandan context, the pretest was performed before initiating this study, and the researcher conducted the pilot study to test reliability of the questionnaire in Rwandan context. It helped to measure and ensures the understanding of participant and acceptability of questionnaire language clarity and reliability. The researcher administered questionnaires to 26 participants, which is tenth of entire sample size. The questionnaire and interview were used to carry out information regarding participants of this study.

3.8. DATA COLLECTION PROCEDURE.

After receiving ethical approval from CMHS /UR (annex no 3) and CHUK, and receiving consent forms from the participants, the questionnaire (annex no 2) was administered to subjects in 5 days of data collection for pretesting the tool. Then the data was collected from 03 March to
02 May, 2019 using the questionnaire which was adapted and socio-demographic questions were included. Open clinic records were used to identify clients on the daily appointment. The patient was given an explanation as to the aim of the study and asked for consent to participate and provide information for the study. After accepting participation in the study and signing the consent form, the participants were given an explanation and as the nature of study questionnaire. The participants were helped by interviewer for self-reporting related to research questionnaire and were helped to complete the questionnaire using the information given by the researcher during the interview. Then the completed questionnaire was collected for analysis.

3.9. DATA ANALYSIS
The analysis of this study was performed using SPSS version 220 and an expert in biostatistics was consulted during the data analysis process whenever necessary. The descriptive analysis was used to determine the level of prostate cancer awareness, to describe prostate cancer screening practices and the tables were used to summarize data. The inferential analysis and chi square test were used to ascertain the association between socio-demographic variables and the level of prostate cancer awareness as well as PCa screening practices of men attending outpatient urology and general surgery at CHUK.

3.10. ETHICAL CONSIDERATION
The study proposal was submitted to the university of Rwanda college of medicine and health sciences institutional review board for approval and ethical clearance (Ref:CMHS/IRB/036/2019)annexes no 3. Ethical approval to collect data was obtained from university teaching hospital of Kigali and the research student received the permission from the ethical committee and from the hospital involved in this study to involve the patients who will be seen in outpatient department (Ref:EC/CHUK/045/2019)annexes 3.

Informed consent containing all elements will be addressed to all participants through a restricted written form and they will be asked to freely sign the consent before participating in study. Anonymity and privacy of all collected data will be ensured during data collection to keep individual anonymity and no names will be used to enter or analyze the data.. The participants will be free to withdraw from the study at any time because the participation is voluntary, and explanation will be provided in each of three languages Kinyarwanda,
English and French. The participants were given time to ask questions, and voice their cancer’s to ensure understanding of the process.

3.11. DATA MANAGEMENT
The collected data was kept in locked box and will be protected during 10 years. The access is restricted to the researcher only and they will not serve other purposes than those of the current study. Those data was managed in software using coded numbers.

3.12. DATA DISSEMINATION
After being analyzed, the study finding will be presented to a panel designated by the University of Rwanda college of Medicine and Health Sciences for assessment and evaluation. In addition, the finding of this study will be presented to CHUK management to facilitate planning for interventions related to prevention of prostate cancer, then the results will be shared with Ministry of health and will be published and submitted in Journal series.

3.13. LIMITATIONS AND CHALLENGES OF THE STUDY
The limitation of this study was selection bias of sample size, in order to be generalised, that was not representative of all Rwandan population. The interview questionnaire face to face leads to recall bias when the participants expressed personal issues. As the researcher worked in the research setting, this caused the information bias related to avoiding negative outcome. Limitations during this study also included the time needed for the researcher to conduct interviews for each participant.

3.14. CONCLUSION OF CHAPTER THREE
In this study we have used quantitative, cross sectional design. A systematic random sampling technique was used to select 257 participants among adult men attending outpatient at university teaching hospital of Kigali.(CHUK). The was done during a two month period.
CHAPTER FOUR: RESULTS

4.1. INTRODUCTION
This chapter presents the research findings. The results from this study are presented to answer the research questions starting with social demographic characteristics of the respondents, followed by prostate cancer awareness and association between social demographic variables and others. The results were presented in tables displaying frequencies and percentages. The tables indicating the association were 2x2 tables with frequencies, percentages and P-values. 100% of respondents filled questionnaires as requested. The questions were open ended and respondents were requested to select the right answer according to his understanding.

4.2. DEMOGRAPHIC CHARACTERISTIC OF RESPONDENTS

Table 4.2.1: Socio-demographic characteristics of respondents (N=257)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequencies</th>
<th>Percentages (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age ranges</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40 to 50</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>51 to 60</td>
<td>111</td>
<td>43</td>
</tr>
<tr>
<td>61 to 70</td>
<td>94</td>
<td>37</td>
</tr>
<tr>
<td>71 to 80</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td><strong>Marital status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not married</td>
<td>29</td>
<td>11</td>
</tr>
<tr>
<td>Married</td>
<td>228</td>
<td>89</td>
</tr>
<tr>
<td><strong>Level of Education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary level</td>
<td>181</td>
<td>70</td>
</tr>
<tr>
<td>Secondary level</td>
<td>46</td>
<td>18</td>
</tr>
<tr>
<td>University level</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Others</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td><strong>Residence</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural</td>
<td>162</td>
<td>63.0</td>
</tr>
<tr>
<td>City</td>
<td>95</td>
<td>37.0</td>
</tr>
<tr>
<td><strong>Health Insurance</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>22</td>
<td>9</td>
</tr>
</tbody>
</table>
The table 4.2.1. Summarizes the social–demographic characteristics of participants in the current research. A majority of respondents ranged between 51 to 60 of age 111(43%), and less dominant range of age was 71 to 80 (7(3%). The majority of respondents reported that they were married 228(89%), and only 29(11%) were not married.

For education level, the majority of attendees were primary level holders 181(70%), and less proportion for university levels 8 (3%). According to the participant's origin, the majority of participants in the study were from rural area 162 (63%), and 95 (37%) within the city. Regarding medical insurance types, the majority of participants were Mutuelle de Santé holders 227(88%), Mediplan 8(3%) and others 22 (9%). For occupation of respondents, the majority of participants 235 (91%) were private workers, 22(9%) work in public sector, while social categories of respondents, the research result found that category 3 was predominant with 162 (63%), and category 4 with 6(2%) was less predominant.
Furthermore, the majority of participants have a personal history of prostate cancer 228(89%) and 29(11%) with no personal history. Finally, related to family history of prostate cancer, many participants in the study reported that they do not know if there are some relatives who have had prostate cancer 228(89%), others reported that their fathers also experienced the condition 22(8%), and others reported their maternal relatives suffering with PCa as 7(3%).

4.3 PRESENTATION OF FINDING’S AS ALIGNED WITH OBJECTIVES

4.3.1. AWARENESS OF PROSTATE CANCER

Table 4.3.1. 1: Distribution of study participants according to awareness of prostate cancer

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heard prostate cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>51</td>
<td>20</td>
</tr>
<tr>
<td>YES</td>
<td>206</td>
<td>80</td>
</tr>
<tr>
<td>PSA awareness channel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health providers</td>
<td>197</td>
<td>77</td>
</tr>
<tr>
<td>Mass media</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>Internet</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Colleagues</td>
<td>30</td>
<td>12</td>
</tr>
<tr>
<td>Symptom of prostate cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequent urination</td>
<td>110</td>
<td>43</td>
</tr>
<tr>
<td>Difficulty in urine emission</td>
<td>43</td>
<td>17</td>
</tr>
<tr>
<td>Erectile dysfunction</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Lower back pain</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Lower pelvic pain</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Haematuria</td>
<td>81</td>
<td>32</td>
</tr>
<tr>
<td>Risk factors of prostate cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Family history</td>
<td>64</td>
<td>25</td>
</tr>
<tr>
<td>Smoking</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>--------------</td>
<td>----</td>
<td>---</td>
</tr>
<tr>
<td>Don't know</td>
<td>165</td>
<td>64</td>
</tr>
</tbody>
</table>

**Prostate cancer age risk**

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 to 50</td>
<td>52</td>
<td>20</td>
</tr>
<tr>
<td>51 to 60</td>
<td>134</td>
<td>52</td>
</tr>
<tr>
<td>61 to 70</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>71 to 80</td>
<td>28</td>
<td>11</td>
</tr>
<tr>
<td>81 and plus</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

**Prevention of the onset of prostate cancer**

<table>
<thead>
<tr>
<th>Prevention</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid smoking</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Doing physical activity</td>
<td>96</td>
<td>37</td>
</tr>
<tr>
<td>Diet control</td>
<td>44</td>
<td>17</td>
</tr>
<tr>
<td>Early screening</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Don't Know any</td>
<td>81</td>
<td>32</td>
</tr>
</tbody>
</table>

**PSA confirms the prostate ca before symptoms**

<table>
<thead>
<tr>
<th>PSA confirmed</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSA confirmed</td>
<td>197</td>
<td>76.7</td>
</tr>
<tr>
<td>PSA not confirmed</td>
<td>60</td>
<td>23.3</td>
</tr>
</tbody>
</table>

Table 4.3.1.1 summarizes the levels of awareness of prostate cancer among respondents, many of participants in current study were aware of prostate cancer 206(80%) and 51(20%) were not aware. For sources of awareness, many participants in the study reported that they get information from health providers 197 (77%), less source of information were from the internet 14(5%). Most of the participants are aware that prostate cancer symptoms include frequent urination 110(43%) .However ,Majority of respondents in the study mentioned that they are not aware of risk factors for prostate cancer 165(64%), those who know that family history is a risk of developing prostate cancer were 64(25%) , for smoking as a risk 14(5%), and for age as a risk 14(5%).

Specifically, to the awareness of age as a risk in prostate cancer, the participants reported predominantly that a range of 51 to 60 years old are mostly at risk of developing prostate cancer 134(52%), for ages 71 to 80 the report was 28(11%).
For prevention of the onset of prostate cancer, many participants mentioned doing physical activity as the first intervention to prevent prostate cancer 96(37%), diet control 44 (17%), avoid smoking 22(9%) and those who do not know 81(32%). Finally for the awareness of the PSA test to confirm prostate cancer, the majority of participants in the study reported that they are aware 197 (77%), and only 60 (23%) reported that they are not aware.

Overall prostate cancer awareness among the participants in the study was 75%, calculated by taking an average of all performance scores of all questions except the failed questions or where participants reported that they don’t know the answer on the question.

**4.3.2. Overall awareness of prostate cancer**

**Table 4.3.2. 1. Overall awareness of prostate cancer**

<table>
<thead>
<tr>
<th>S/N</th>
<th>Variables regarding Prostate Ca awareness</th>
<th>Frequencies of prostate Ca values</th>
<th>Score of Awareness (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Symptoms of prostate cancer</td>
<td>257</td>
<td>100</td>
</tr>
<tr>
<td>2</td>
<td>Risk factors of prostate cancer</td>
<td>92</td>
<td>36</td>
</tr>
<tr>
<td>3</td>
<td>prostate Ca age risk</td>
<td>205</td>
<td>100</td>
</tr>
<tr>
<td>4</td>
<td>Prevention of the onset of prostate Ca</td>
<td>176</td>
<td>68</td>
</tr>
</tbody>
</table>

| Average score of awareness | 76 |

Above table shows Overall awareness of prostate cancer was evaluated by making average of performance of each variable (table 4.5). Failed answers were not included in overall awareness , overall awareness was 76% whereby all participants in the study participants know to identify symptoms of prostate cancer 257 (100%); same as identifying risk of developing prostate cancer 257(100%); participant scored moderately 176(68%) and minimum score was found on prevention of onset of prostate cancer 92(36%).
### 4.3.3. PROSTATE CANCER SCREENING PRACTICE

#### Table 4.3.1 Prostate Cancer Screening Practice

<table>
<thead>
<tr>
<th>Variables</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical visit for prostate Ca problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>88</td>
<td>34</td>
</tr>
<tr>
<td>Yes</td>
<td>169</td>
<td>66</td>
</tr>
<tr>
<td>Number of medical visit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Once</td>
<td>81</td>
<td>32</td>
</tr>
<tr>
<td>Twice</td>
<td>43</td>
<td>17</td>
</tr>
<tr>
<td>Don't remember</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Three times and above</td>
<td>111</td>
<td>43</td>
</tr>
<tr>
<td>Encouragement for screening by health provider</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>161</td>
<td>63</td>
</tr>
<tr>
<td>Yes</td>
<td>96</td>
<td>37</td>
</tr>
<tr>
<td>Performing Rectal Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>110</td>
<td>43</td>
</tr>
<tr>
<td>Yes</td>
<td>140</td>
<td>54</td>
</tr>
<tr>
<td>Don't remember</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Frequencies of rectal exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>More than once</td>
<td>110</td>
<td>43</td>
</tr>
<tr>
<td>don’t remember</td>
<td>68</td>
<td>26</td>
</tr>
<tr>
<td>Once</td>
<td>79</td>
<td>31</td>
</tr>
<tr>
<td>Had previous PSA Test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>127</td>
<td>49</td>
</tr>
<tr>
<td>Yes</td>
<td>116</td>
<td>45</td>
</tr>
<tr>
<td>Don’t remember</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Reasons of not be tested for PSA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Don’t know importance</td>
<td>134</td>
<td>52</td>
</tr>
<tr>
<td>Ignore the kind of exam</td>
<td>81</td>
<td>32</td>
</tr>
</tbody>
</table>
Table 4.3.3.1 summarizes the practice regarding prostate cancer screening. In relation to the DRE exam, a predominant number of the participants agreed that they have received a rectal exam 140 (54%), 110 (43%) had not experienced such an exam, and 7 (3%) do not remember if they have received a rectal exam. Related to the frequency of the rectal exams, many participants have received the rectal exam more than once 110 (43%), once only 79 (31%), and 68 (26%) do not remember.

For the PSA exam, 116 (45%) reported that they have been tested for PSA, 127 (49%) reported to not having been tested for PSA, and 14 (5%) do not remember if they have been tested for PSA.

Reasons for not being tested for PSA were predominantly reported as not having knowledge on the importance of PSA 134 (52%), ignore the type of exam 81 (32%), lack of advice related to PSA exam 35 (14%), and lack of money to pay for the exam 7 (3%).

According to the reasons of being tested, many participants were tested per the Doctors instruction 123 (48%), 66 (26%) were tested because they felt at risk of prostate cancer, 60 (23%) were tested due to the advice received from others, and 8 (3%) were tested because they had previously been diagnosed with prostate cancer.
4.3.4. OVERALL PROSTATE CANCER SCREENING PRACTICE

Table 4.3.4. 1: Overall prostate cancer screening practice

<table>
<thead>
<tr>
<th>Screening Test</th>
<th>Frequencies</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectal Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>110</td>
<td>43</td>
</tr>
<tr>
<td>yes</td>
<td>140</td>
<td>54</td>
</tr>
<tr>
<td>Don't remember</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>PSA test</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>127</td>
<td>49</td>
</tr>
<tr>
<td>yes</td>
<td>116</td>
<td>45</td>
</tr>
<tr>
<td>Don't remember</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>OVERALL SCREENING(Rectal exam and PSA)</td>
<td></td>
<td>49.5</td>
</tr>
</tbody>
</table>

This section shows the overall prostate cancer screening among who participated in the current study, practice of Prostate cancer screening consisted of two tests, PSA test and DRE exam. The average percentage of the two tests were at a proportion of 49.5% which constitutes an overall percentage of Prostate cancer screening practice, rectal exam practice was 54% and PSA test 45% respectively(Table 4.3.4) . Men who underwent a rectal exam were greater than those who performed PSA test.

4.3.5. Association between socio -demographic variables and awareness of prostate cancer

Table 4.3.5. 1: Association between socio -demographic variables and awareness of prostate cancer

<table>
<thead>
<tr>
<th>Variables</th>
<th>Aware of Prostate cancer</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No(N=51)</td>
<td>Yes(N=206)</td>
<td>P-value</td>
</tr>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
<td>Freq.</td>
</tr>
<tr>
<td>Age categories</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 to 80</td>
<td>7</td>
<td>100.0%</td>
<td>0</td>
</tr>
<tr>
<td>61 to 70</td>
<td>7</td>
<td>7.4%</td>
<td>87</td>
</tr>
<tr>
<td>51 to 60</td>
<td>29.0</td>
<td>26.1%</td>
<td>82.0</td>
</tr>
<tr>
<td>40 to 50</td>
<td>8.0</td>
<td>17.8%</td>
<td>37.0</td>
</tr>
<tr>
<td>Marital status</td>
<td>married</td>
<td>36</td>
<td>15.8%</td>
</tr>
<tr>
<td>----------------</td>
<td>---------</td>
<td>----</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>Single</td>
<td>15</td>
<td>51.7%</td>
</tr>
<tr>
<td>Level of education</td>
<td>others</td>
<td>7</td>
<td>31.8%</td>
</tr>
<tr>
<td></td>
<td>university</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>secondary school</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>primary level</td>
<td>44</td>
<td>24.3%</td>
</tr>
<tr>
<td>Residence</td>
<td>City</td>
<td>37</td>
<td>38.9%</td>
</tr>
<tr>
<td></td>
<td>rural</td>
<td>14</td>
<td>8.6%</td>
</tr>
<tr>
<td>Type of health insurance</td>
<td>Mutuelle</td>
<td>51</td>
<td>22.5%</td>
</tr>
<tr>
<td></td>
<td>Mediplan</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Others</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Occupation</td>
<td>Public</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Private</td>
<td>51</td>
<td>21.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>46.6</td>
</tr>
<tr>
<td>Social class</td>
<td>category 3</td>
<td>36</td>
<td>22.2%</td>
</tr>
<tr>
<td></td>
<td>category 2</td>
<td>8</td>
<td>13.3%</td>
</tr>
<tr>
<td></td>
<td>category 1</td>
<td>7</td>
<td>20.0%</td>
</tr>
<tr>
<td>History of prostate problems</td>
<td>No</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>51</td>
<td>22.4%</td>
</tr>
<tr>
<td>family history</td>
<td>not Known</td>
<td>51</td>
<td>22.4%</td>
</tr>
<tr>
<td></td>
<td>to father</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>born with</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td></td>
<td>mother</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Table 4.3.5.1. Shows the association between social –demographic data and prostate cancer awareness among the participants; the Pearson Chi Square test was used to measure the association between socio-demographic variables and prostate cancer awareness.
The confident interval (CI) was set at 95% = P-value of 0.005. All demographic variables were positively associated with awareness of prostate cancer except social class (which negatively associated with Prostate cancer awareness (p=0.337).

While cross tabulating the age and the prostate cancer awareness, it has been found that age is significantly associated with prostate cancer awareness P=0.000, as well as marital status p=0.000. There is a significant association between being married and having awareness of prostate cancer p=0.000.

4.3.6 ASSOCIATION BETWEEN SOCIO-DEMOGRAPHIC VARIABLES A PROSTATE CANCER SCREENING PRACTICE

Table 4.3.6. 1: Association between socio-demographic variables a prostate cancer screening practices.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Prostate C a Screening</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No(n=88)</td>
<td>yes(n=169)</td>
<td>P-value</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Age categories</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71 to 80</td>
<td>0</td>
<td>0.0%</td>
<td>7</td>
<td>100.0%</td>
</tr>
<tr>
<td>61 to 70</td>
<td>36</td>
<td>38.3%</td>
<td>58</td>
<td>61.7%</td>
</tr>
<tr>
<td>51 to 60</td>
<td>29</td>
<td>26.1%</td>
<td>82</td>
<td>73.9%</td>
</tr>
<tr>
<td>40 to 50</td>
<td>23</td>
<td>51.1%</td>
<td>22</td>
<td>48.9%</td>
</tr>
<tr>
<td>Level of education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>of Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>others</td>
<td>7</td>
<td>31.8%</td>
<td>15</td>
<td>68.2%</td>
</tr>
<tr>
<td>university</td>
<td>0</td>
<td>0.0%</td>
<td>8</td>
<td>100.0%</td>
</tr>
<tr>
<td>secondary school</td>
<td>8</td>
<td>17.4%</td>
<td>38</td>
<td>82.6%</td>
</tr>
<tr>
<td>primary level</td>
<td>73</td>
<td>40.3%</td>
<td>108</td>
<td>59.7%</td>
</tr>
<tr>
<td>Residence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>City</td>
<td>51</td>
<td>53.7%</td>
<td>44</td>
<td>46.3%</td>
</tr>
<tr>
<td>rural</td>
<td>37</td>
<td>22.8%</td>
<td>125</td>
<td>77.2%</td>
</tr>
<tr>
<td></td>
<td>Mutuelle (88)</td>
<td>Mediplan (0)</td>
<td>Others (0)</td>
<td>P-Value</td>
</tr>
<tr>
<td>--------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>------------</td>
<td>---------</td>
</tr>
<tr>
<td>Type of health insurance</td>
<td>38.8%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>61.2%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Public (0)</th>
<th>Private (88)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupation</td>
<td>0.0%</td>
<td>37.4%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>62.6%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>category 3 (88)</th>
<th>category 2 (0)</th>
<th>category 1 (0)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social class</td>
<td>54.3%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>45.7%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No (0)</th>
<th>Yes (88)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of prostate problems</td>
<td>0.0%</td>
<td>38.6%</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>100.0%</td>
<td>61.4%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>not Known (88)</th>
<th>to father (0)</th>
<th>born with (0)</th>
<th>mother (0)</th>
<th>P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>family history</td>
<td>38.6%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.001</td>
</tr>
<tr>
<td></td>
<td>61.4%</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
<td></td>
</tr>
</tbody>
</table>

Table 4.3.6.1 represents the crosstabulation for testing the association between the social and demographic information of participants in the current study, all socio demographic variables were associated with practice of cancer screening as evidenced by p-value less than 0.005.
CHAPTER V. DISCUSSION

5.1. INTRODUCTION

The aim of this section is to discuss findings from the study in line with study objectives. The results were compared with other research findings of different studies conducted by other researchers for showing the relationship or deviations from the current study.

5.2. DEMOGRAPHIC CHARACTERISTICS

The study assessed the awareness and prostate cancer screening practices among 257 males attending outpatient department at Kigali teaching hospital, the age of respondents ranged between 40 up to 80. Most of the participants (89%) were married, due to age category of target population for the current study and it is in fact the social norm that most men of 40 years old and above are married. However, the research found that the predominant education level among the participants was primary level, 181(70%), the probable reason being that patients who visit public health institutions are from rural areas and use the public health insurance Mutuelle de Santé. Additional reasons for participants (63%) being from rural areas, is due to lack of medical specialists in rural areas, and therefore the need to attend the urban public health facilities. In contrast, the urban population has access to specialities not only in public health facilities but also in private facilities. Moreover, the majority of study participants being users of public health insurance is due to the government policy of limiting public insurance recipients to services available at the public health institutions. Clients with other health insurance prefer to visit private institutions.

Most of participants (91%) in the study were in private employment, the possible reason is that data collection was conducted on common working days, and also the public employed workers are more inclined to visit the private clinics. Finally, the majority of participants (89%) in the study have family history of prostate cancer; this is possibly the reason of some of them to consult for urology services.
5.3. AWARENESS OF PROSTATE CANCER

The current study assessed the awareness and prostate cancer screening practices among 257 males attending outpatient department at Kigali teaching hospital. The age of respondents ranged between 40 to 80. The staff must explain the procedures to the patients, and sign when they are agree with the procedures.

Most of the participants were married (89%). These findings are quite similar to that conducted in Nigeria where age range was between 40 to 88 (Abdulrahman et al., 2016).

The majority of respondents 206(80%)are aware of prostate cancer, but many of the respondents do not know the risk factors of prostate cancer 165(64%). The staff must explain the procedures to the patients, and sign when they are agree with the procedures.

This is approximately similar to study findings conducted in South Africa, wherein the knowledge was 63%(Korley, 2018), and lower than the findings found in The study conducted in Nigeria found on the same where awareness about prostate cancer was only 5% (Awosan et al., 2018).

Moreover, the findings of the current study on awareness of prostate cancer differs from the study findings of the study conducted in Nigeria, whereby 60.4% were aware about prostate cancer (Awosan et al., 2018) and totally different to other study findings conducted in same country found only 5% (Abdulrahman et al., 2016).

Most of private workers among the study participants demonstrated awareness of prostate cancer 78%, this is contrary to the study conducted in South Africa where the self-employed had less level of knowledge (Kaninjing et al., 2017).

5.4. PRACTICE OF PROSTATE CANCER SCREENING

The proportion of respondents who have been screened for the staff must explain the procedures to the patients, and sign when they are agree with the procedures.

Prostate cancer was 66%, this is contrary to the study findings in Cameroun The staff must explain the procedures to the patients, and sign when they are agree with the procedures on where only 8.1% were screened for prostate cancer (Ernest et al., 2017).
Even though the prostate exam and specifically PSA test are not yet maximally performed in Kigali Teaching hospital, as shown in the current study; 66% visited the hospital for the prostate exams and 45% for the PSA, it is contrary to the study conducted in Turkey where only 23.8 of participants in the study performed the prostate exams and 21.2% performed the PSA (Bilgili, 2019).

5.5. FACTORS ASSOCIATED WITH PROSTATE CANCER AWARENESS AND SCREENING PRACTICE

The current study findings revealed that age is associated with prostate cancer awareness predominantly in the age range of 61 to 70, these findings are quite similar to the results found in Ireland where the majority of respondents who were aware of prostate cancer ranged between 60 and 75 old (Leonard, Wells and Brandler, 2017)

However, educational status was significantly associated with prostatic cancer awareness whereby the University academic levels and Secondary levels showed higher level of awareness more than those with primary level, this was found by different researchers, as in Nigeria (Aluh et al., 2018) in Saudi Arabia (Arafa, Rabah and Wahdan, 2013) and in Malaysia (Leonard, Wells and Brandler, 2017).

But occupation played a positive role as men who are private servants, and private workers were found to have better levels of awareness as well as more positive screening practices than people of the public sector. Notably, these occupations are also associated with higher levels of education. This is contrary with the findings amongst Africans where social-economic status was found to significantly affect the level of knowledge with the people of higher social-economic factors having a higher level of awareness and knowledge about PCa (Ogunsanya et al., 2019).
CHAP SIX: CONCLUSIONS AND RECOMMENDATIONS

6.1. INTRODUCTION

The lack of prostate cancer initiatives to address awareness and screening practice, negatively affects the life of adult men. However, this issue cannot be addressed without a multidisciplinary coalition focused on awareness and screening programs related to prostate cancer.

6.2. CONCLUSIONS

In conclusion, the results of the present study show that the level of awareness among the men who visit outpatient department at Kigali university teaching hospital about prostatic cancer is enough in general, but the participants in the study demonstrated low knowledge in prostate cancer prevention, in identifying the risk factors, and determining the known age at higher risk for developing prostate cancer. The main sources of information about prostate cancer being health providers. The level of awareness about symptoms of prostate cancer were not satisfying Screening practices were found to be poor; almost half of participants did not perform PSA test and other prostate Ca screening test. The study found the positive correlation between socio-demographic variables and awareness of prostate cancer, except the social class which is not associated to the awareness of prostate cancer, moreover practice of cancer screening was strongly correlated with socio-demographic factors.

The current study adds to the body of evidence that awareness of prostate cancer and screening practices are still poor in Rwandan males. It was also discovered that information about prostate cancer are commonly obtained from the medical personnel. Furthermore, the failure of other channels of communication such as televisions, radio and other mass media could be a common reason why men have been screened in low proportion.

6.3. RECOMMENDATIONS

The following recommendations are offered to the identified institutions to participate in prevention and early detection of prostate cancer.
6.3.1 To high level Administration
It is recommended to have policy instituted by the regulatory bodies, for all men above 40 years old to be routinely offered the opportunity to be screened for prostate cancer when they need any type of care from the health facility. This approach will provide the opportunity to increase the number of men who may be screened for PCa. Also, the Ministry of health (MOH) should organize public health campaigns using the mass media, hospital and the religious centres to improve knowledge and use of screening practices related to the prevention of prostate cancer.

6.3.2 To (CHUK) administration
To have a schedule of prostate cancer education by staff in the outpatient department and inpatient hospitalization to allow the continuity of information dissemination related to prostate cancer; including risk factors, early symptoms and screening practices. Continue to encourage physicians to deliver prevention and screening information to the adult men during the private consultation.

6.3.3 For nursing practice
The current study is a reminder that nurses can and should contribute to prostate cancer screening activities at all points of patient contact. Integrating the information, education and communication (IEC) regarding prostate cancer issues in their health education packages, also in their practice in collaboration with Doctors and other health professionals. Nurses should take the lead in performing cancer awareness activities, and actively encourage patients to pursue screening via DRE exam and PSA testing.

6.3.4 Nursing administration
Nurse administrators participate in policy planning, staff, management, financial resource management, business management, coordinating and supervising the delivery of health care, based on their responsibilities. They are recommended to include the prostate cancer awareness and screening in the package of healthcare services in different health facilities levels, and introduce systematic monitoring and evaluation of the program.

6.3.5 for Nursing Research
The researcher recommends that the study be conducted in different regions of the country for comparison of country wide population differences, Also, in different levels of health institutions
both public and private, rural and urban areas. Prior to launching new program initiatives, further research should focus on investigating the barriers to cancer awareness, including PCa, to aid in prioritizing interventions related to improvement,

6.3.6 For Nursing Education
The researcher recommends that prostate cancer and other predominant cancers be appropriately covered and their importance emphasized in curriculum development, with additional allotted time for learning. Nursing schools should work closely with health facilities by providing evidence based practice and other relevant knowledge regarding prostate cancer screening and aid the institutions in conducting different studies in that domain.

Also, nursing schools could organize different campaigns regarding awareness of prostate cancer and facilitate the preparation of community education messages according to the target audience.
REFERENCES


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CONSENT FORM

TOPIC RESEARCH: AWARENESS AND SCREENING PRACTICES OF PROSTATE CANCER AMONG ADULT’S MALES ATTENDING OUTPATIENT DEPARTMENT AT CHUK

PART 1. INFORMATION SHEET

Principal investigator: Benurugo Genevieve, email: gladly 7212@gmail.com

Organization: University of Rwanda college of Medicine and health sciences, School of Nursing and Midwifery (www.ur.ac.rw)

Supervision:

Supervisor: Mr Emile Munyambaraga

Co-supervisor: Dr Geldine Chironda

Sponsor: none

PURPOSE OF STUDY is to assess awareness and screening practices of prostate cancer among adults’ males attending outpatient department at CHUK

DESCRIPTION OF THE STUDY PROCEDURES

When the patient agree to participate in this study, firstly, he will be asked to sign this consent form, then he will be explained about question, take a questionnaire read it and fill it and the patient will be required to submit it back to the researcher after its completion.

RISKS/DISCOMFORTS OF BEING IN THIS STUDY

There are no known risks. And there are no reasonable expected risks.

BENEFITS OF BEING IN THE STUDY

There are no direct benefits to the participants; however the researcher hope that the results of the study will provide valuable information regarding awareness and screening practices of prostate cancer among adults males and will help in care providers training.
CONFIDENTIALITY
The questionnaire which will be used in this study will collect some information about your identity except your name. Also the researcher will not include information in any report she may publish that would identify you.
The records of this study will be kept strictly confidential. Research records will be kept in a locked file and all electronic information will be coded and secured using a password in a protected file.

PAYMENTS
This study has academic purpose no any founds, so there will be no payment to participate in this study.

RIGHT TO REFUSE OR WITHDRAW
The decision to participate in this study is completely up to you. You may refuse to take part in the study at any time without affecting you. You have the right not to answer any single question or question you think concerns your dignity, as well as to withdraw completely from the study at any point during the process.

RIGHT TO ASK QUESTIONS AND REPORT CONCERNS
You have the right to ask questions about this research study before, during or after the research. If you have any further questions about the study, at any time feel free to contact me, BENURUGO Genevieve at glady7212@gmail.com or by telephone at 0788623709) University of Rwanda, College of Medicine and Health Sciences, School of Nursing and Midwifery in oncology track.
If you like, a summary of the results of the study will be sent to you. If you have any other concerns about your rights as a research participant that has not been answered by the researcher, you may contact Chairperson of the CMHS IRB (0788 490 522) and the Deputy Chairperson (0783 340 040)
Part 2: CERTIFICATE CONSENT

Me ………………………I have been explained about the purpose of research that identifies the met and unmet needs of cancer patients.
I have been understood all information provided about the researcher include my right to Refuse and to withdraw or to not answered all question, that there no known risk, no any Payment and no particular benefit except to understand how the quality are measured through the question that can be asked. And also I have to feel free to contact a researcher any time when I have concerns.
I have been understood that the confidentiality will be taking serious in this study where on the questionnaire will not appear my name; And that I have a right to refuse or to withdraw my participation in this study.
After been read, explained and understood all the information provided above about the Purpose of study and their rules. Consciously, I decided to volunteer as a research participant For this study, my consciousness for participation in this study indicated by my signature below.

Participant's Name (print):.........................
Participant's Signature: .........................
. Date:...........................................

Researcher’s Signature: .........................
Date:.............................................
AMASEZERANO YO KUGIRA URUHARE MU BUSHAKASHATSI

Izina ry’ubushakashatsi:
Gusuzuma ubumenyi nuburyo bwo kwisuzumisha kanseri ifata mu myanya myibarukiro y’abagabo( prostate) .
Ubushakashatsi buzibanda ku bagabo bivuriza mu bitaro bikuru bya kaminuza CHUK.
Izina ry’umusha kashatsi: BENURUGO Genevieve
Numero zatelephone ngendanwa: +250788623709

IRIBURIRO
Nitwa BENURUGO Genevieve nkaba ndi umunyeshuri murikorejiy’ubuvuizi, ndetse n’ubumenyi bw’ubuzima rya kaminuza y’urwanda mwishami ry’ubuforomo n’ububyaza, mu bijyanye no kuvura.
Nkaba ndigukora ubushakashatsi bugamije Gusuzuma ubumenyi nuburyo bukoreshwa bisuzumisha kanseri ifata mu myanya myibarukiro y’abagabo( prostate) .

INTEGO Y’UBUSHAKASHATSI Gusuzuma ikigero cy’ ubumenyi nuburyo bukoreshwa bisuzumisha kanseri ifata mu myanya myibarukiro y’abagabo( prostate) ku bagabo bivuriza mubitaro bikuru bya kaminuza CHUK.

IBIZAKORWA MURI UBUBUSHAKASHATSI
Mu gihe wemeye kugira uruhare muri ububushakatsi, bwambere usabwa kuzuza amasezerano yemerakugira uruhare mu bushakashatsi ndetse ugasobanurirwa ibibazo binyuranye bibazwa kuri ubwobushakashatsi, unahabwe urupapuro rw’ibibazo bibazwa ku bushakashatsi.
Ufite gusoma ukarwuzuza nyuma yo kurwuzuza ukarugarurira umushakashatsi.
Kopi y’urupapuro rw’amasezerano urayihabwa n’izindi kopi zakenerwa mu bushakashatsi.

INGARUKA ZO KUBA MURI UBU BUSHAKASHATSI
Ntangarukazizwi, ntaniziteganywa muri ububushakashatsi.

INYUNGU ZO KUBA MURI UBUBUSHAKASHATSI
Ubu bushakashatsi bufite inyungu yokuba hamenywa ikigero cyubumenyi abagabo bafite ku ndwara ya kanseri ya prostate ndetse nuburyo bakoresha bayisuzumisha
Kandi ibizavamo bizadufasha mu kwigisha, mu bushakashatsi ndetse no mu gukangurira abagabo muri rusange kubirebana na kanseri yimyanya myibarukiro yabagabo.

KUGIRA IBANGA
Amakuru yose tuzakura muri ububushakashatsi azaguma ari ibanga kandi ntazina rizagaragara.
Kurupapuro ruriho ibibazon’ibusubizo.
Amaku yose azabikwa ahantu hizewe kandi nta wundu muntu usibye abarimu wemerewe kuyabona.

AGAHIMBAZA MUSYI
Ubu bushakashatsi bufite intego ku bijyanye no kwiga. Nta nkunga y’amafrangacyangwa indi nyungu, bityo nta mpano cyangwa amafranga duteganya gutanga kumuntu wese uzemera kugira uruhare muri ubu bushakashatsi.

UBURENGANZIRA BWO KWANGA CYANGWA KUVA MU BUSHAKASHATSI
Kugira uruhare muri ubu bushakashatsi bishingiye ku bushake bwawe bwose.
Ufite uburenganzira bwo kutabugiramo uruhare kandi ntibigire icyo biguhungabanyaho.
Ufite uburenganzira bwo kutagira ikibazo nakimwe usubiza cyangwa kureka gusubiza ikibazo kibangamiye ubusugire bwawe, kimwe nuko ufite uburenganzira bwo kuba wahagarika igihe cyose ushakiye uruhare rwawe muri ubu bushakashatsi nubwo bwaba bwatangiye.

UBURENGANZIRA BW’UWO WABAZA IKIBAZO NO GUTANGA RAPORO Y’IBYO WUMVA BITAMEZE NEZA
Ufiteuburenganzira bwo kubazaibibazo bijyanye n’ububushakashatsi no kubacyasubizwa n’umushakashatsi mberey’uko butangira. Haramutse hari ikibazo wifuza kuzabaza nyuma kandi kijyanye nubu bushakashatsi, wazakibaza wisanzuye igihe icyo aricyo cyose ugahamagara jyeve BENUKO Genevieve kuri telefoni igendanwa +250788623709 cyangwa ukanyandikira kuri emailya glady721@gmail.com
Uramutse wifuza kumenya incamake yubu bushakashatsi cyangwa mugihe waba ufite ikinti cyumwihariko cyo kubaza cyangwa uburenganzira bwa butubahirijwe n’umushakashatsi wakwiyambaza telephone igendanwa 0788490522 y’umukozi wa kaminuza y’uRwanda mu ishami ry’ubuzima, cyangwa umwungirije kuri numero 0783340040

AMASEZERANO YO KUGIRA URUHARE MU BUSHAKASHATS.  

Njyewe……………………,

nasobanuriwe intego y’ubushakashatsi ko ari *Gusuzuma ubumenyi nuburyo bukoreshwa bisuzumisha kansi ifata mu myanya myibarukiro y’abagabo( prostate) ku bagabo bivuriza mubitari bikuru bya kaminuza CHUK.*  

Njyewe numviseneza amakurunahawe ajyanyen’ububushakashatsi harimoko ntangaruka byangiraho, kandiko ntanyungu kugiticyanjyenzakuramukwemera kugira uruhare muriubu bushakashatsi,kandikontamafaranga cyangwa impano nzahabwa nindamukanemeye kugira uruhare muri ububushakashatsi.  

Nahawekandiaderesi yukuriye ubushakashatsi kuburyo nshobora kubaza ibi bibazo ibyo aribyo byose biyanye nubushakashatsi kandi igihe cyose..  

Njyewe na numvise neza ko muri ubu bushakashatsi harimo kubika ibanga kuko kurupapuro rw’ibibazo ntamwirondoro wanjye uzagaragaraho. Kandi ko mfite uburenganzira bwo guhagarika kugira uruhare mu bushakashatsi igihe icyari cyocyoze.  

Nyuma yokubyisomera, gusobanurirwa no kumva amakuru yosenahewayavuzwe haruguru, Nemeye kugira uruhare muri ubu bushakashatsi kugiti cyanjyeyikibemeyeza n’umukono wanjye.  

Amazina y’uwemeye kugira uruhare mu bushakashatsi………………………………………………  

Umukono wuwemeye kugira uruhare mu bushakashatsi…………………………………………….  

Italiki…../…../……
FORMULAIRE DE CONSENTEMENT

Consentement à participer à un projet sensibilisation et dépistage du cancer de la prostate chez les hommes adultes fréquentant les services ambulatoire du CHUK.

Salutations!
Mon nom est BENURUGO Geneviève. Je suis une étudiante infirmière travaillant sur une thèse avec l'objectif d'évaluer le niveau de sensibilisation et dépistage du cancer de la prostate chez les hommes adultes fréquentant les services ambulatoire du CHUK.

But de l'étude
Deux cent cinquante-sept patients (257) participeront à cette étude pour évaluer le niveau de sensibilisation et dépistage du cancer de la prostate chez les hommes adultes fréquentant les services ambulatoire du CHUK.

Ce que la participation implique
Si vous acceptez de participer à l'étude, vous devrez répondre aux questions. Les questionnaires sont composés de 3 sections : section 1 : questions sur l'information socio-économique démographique, la section 2 les questions seront demandées pour évaluer le niveau de connaissance sur le cancer de la prostate et la section 3 le questions seront demandés sur les pratiques de dépistage faits concernant le cancer de la prostate.

Confidentialité

L'étude ne comprendra pas les détails qui vont vous identifier directement, comme votre nom. Seul un numéro d'identification de participant sera utilisé dans l'enquête. Si les résultats de l'étude en cours étaient publiés ou présentés lors d’une réunion scientifique, les noms et autres informations susceptibles de vous identifier ne seraient pas utilisés.

Risk pour les participants

Le chercheur ne s'attend pas à ce qu'un préjudice vous soit causé en raison de votre participation à cette étude. Droits de retrait et solutions de rechange Vous êtes libre de sauter n'importe quelle question si vous vous sentez mal à l'aise de divulguer des informations. Vous pouvez cesser de participer à cette étude à tout moment, même si vous avez déjà donné votre consentement.
Le refus de participer ou le retrait de l'étude n'entraînera pas de pénalité ou de perte des avantages auxquels vous avez droit.

**Avantages pour les participants**

Il n'y a pas d'avantages directs pour vous; Mais le chercheur espère que les résultats de l'étude fournira des informations précieuses concernant la sensibilisation et les pratiques de dépistage du cancer de la prostate chez les hommes adultes.

**En cas de blessure**

Le chercheur ne prévoit pas qu'un préjudice vous sera causé par suite de la participation à cette étude.

**A contacter**

Si vous avez des questions au sujet de cette étude, vous devriez contacter le chercheur BENUUGO Genevieve RN (+250788623709) Université du Rwanda, Faculté de médecine et des sciences de la santé, École des sciences infirmières et obstétrique en section d'oncologie.

**Signature:**

Acceptez-vous de participer? Le participant accepte ......................... ...............

Le participant n'est pas d'accord ................. ..

I. ______________________________________________________________________

ai lu le contenu de ce formulaire. J'ai été répondu à mes questions. J'accepte de participer à cette étude.

Signature du participant ______________________________________________________

Signature du chercheur __________________________________________ Date__________

Chairperson of the CMHS IRB tel: 0788490522

Deputy Chairperson tel: 0783340040
ANNEXES

3. RESEARCH INSTRUMENTS

Instructions
All response will be treated in strict anonymity and seen only by the researcher and research assistants.
- Please do not mention your name or any other personal address on this questionnaire.
- Please be honest to answer these questions, we want to hear the true information about you.
- Answer the appropriate response by using the x sign or by putting where yes or not necessary.
- Answer all the questions.

I. SOCIO-ECONOMIC - DEMOGRAPHIC INFORMATION

A. what is your age category?
   1. 40 -50 year
   2. 51-60 year
   3. 61-70 years
   4. 71--80 years…
   5. 81 years and above…

B. What is your marital status?
   Single
   Married

C. What is you level of education?
   1. Primary school
   2. Secondary school
   3. University
   4. None

D. Where do you live?
   1. In rural
   2. In town

E. The health insurance that you use

   □
1. MEDIPLAN
2. MUTUELLE
3. Others

F. What is your occupation?
Public agent
Private worker

G. What is your social class?
Category 1
Category 2
Category 3
Category 4

H. Have you ever had prostate problems?
YES
NO

I. Have any of your family ever had prostate problems?
Father
Brother
In mother’s family
Don’t know

II. PROSTATE CANCER AWARENESS
A. Have you ever heard of prostate cancer?
Non
Yes

If yes, how did you hear?
1. Mass media
2. Health providers
B. what are the symptoms of prostate cancer? (tick where applied)
1. Frequent urination
2. Difficulty in urine emission
3. Erectile dysfunction
4. Pain in lower back
5. Pain in lower pelvic area
6. Hematuria
7. I don’t know any

C. What may be the risk factors of prostate cancer? (More than one answer is possible)
1. Age
2. Family history
3. Smoking
4. Diet (animal fat, low fibers)
5. Sedentary
6. Obesity
7. I don’t know any

D. At what ages are men more at risk of developing cancer of the prostate?

AGE CATEGORY

1. 40-50 years
2. 50-60 years
3. 60-70 years
4. 70-80 years
5. 80 years
6. I don’t know

E. What can prevent the onset of prostate cancer? (more than one answer is possible)
1. Ovoid smoking
2. Doing physical activities
3. Avoid obesity
4. Diet control
5. Early screening
6. I don’t know any

F.6. the PSA (Prostate-Specific Antigen) test is a blood test that allows you to locate cancer before the symptoms occur. Have you ever heard of it?

1. NO
2. Yes

If yes, If Yes, how did you hear?
1. Mass media
2. Health providers
3. Internet
4. Friends/family

J. Other method used to screen PCa
1. Digital Rectal examen

2. Considering the symptoms as patients complains

III. PROSTATE CANCER SCREENING PRACTICES

A. Have you ever gone to the physician and/or an urologist for prostate problems?
1. No
2. Yes

B. Did the physician and/or urologist informed you or encourage you to do early screening of prostate cancer?
1. No
2. Yes

C. Have you ever had the rectal examen?
No
Yes

How often?
One time
More than 2

D. Have you ever had the PSA test?

No
Yes

Why?
I ignore that kind of exam.
I didn’t received any advice.
Lack of money
I fell not concerned by that disease
IBIBAZO/ PROPOSAL

Mu kinyarwanda

I.Ibibazo bikurikira bibaza ibijyanye n’imyirondoro rusange.
a. Ikigero cyimyaka yawe :

1.40-50
2.51-60
3.61-70
4.71----80
5. hejura ya 81

b. Ira ingamimerere:
1. Ingaragu
2. Urubatse

c. Urwego rw’amashuri wize:
1. abanza
2. amakuru
3. ayisumbuye
4. kaminuza
5. kuba utarize

d. Aho utuve:
1. mu cyaro
2. mu mujyi

e.Icyiciro cy,imibereho cy,ubudehe
Icyiciro cy1
Icyicirocya 2
Icyiciro cya gatatu
Icyiciro cya 4

def. Ubwishingizi ukoresha:

1.. MEDIPLAN
2. Mutuelle
6.ibindi

i. Umurimo ukora:

umukozi leta
urikorera………

j.Mu babyeyi cg abavandimwe bawe hari uwo wunvise wagine ikibazo cya prostate?
oya
yego ,
niba ari yego sobanura neza icyo mupfana
Umubyeyi wanjye
Turavukana
Avukana na data

3.Ubumenyi ku ndwara ya kanseri ya prostate.

a. Waba warigeze kuunva indwara ya kanseri ya prostate ifata imyanya myibarukiro yabagabo?
   Oya
   Yego

   -wayimenye ute ?
   1.ibinyamakuru
   2. muganga
   3. itumanaho
   4. inshuti
   5.abavandimwe

b.Vuga bimwe mu bimenyeto bi garagazaufite uburwayi bwa kanseri ya prostate waba uzi?
Kimwe cg Bitatu birahagije

1. Kwihagarika bigoranye ukarinda gusunika
2. gushaka kwihagarika kenshi…………
3. Kubabara ahagana mu mugongo hasi……………………
4. Kubura imbaraga zigitsina…
5. Kunyara amaraso
6. Ntanakimwe nzi
c. Vuga bimwe mu bitiza umulindi kanseri ya prostate(igisubizo kimwe cg byinshi birashoboka)
   1Kumyw itabi
2…Imyaka yubukure
3…Uruhererekane mu mryango
4…Kudakora imyitizo ngororamubili
5…Imirire itarimo imboga nimbuto
6. umubyibuho ukabije
7. Ntanakimwe nzi
d. Ni kuyihe myaka abagabo bakunze kurwara iyi ndwara………………
   1.40-50year
   2.50-60yrs
   3.60-70years
   4.70…..80years……
   5.80……
   6.Ntayo nzi..
e. Ni iki twakora ngo turwanye iyi ndwara (igisubizo kimwe cg byinshi  birashoboka)
   1…Gukora  imyitozo ngorora mubili………………..
2…kutanywa itabi……………………
3…Kwirinda umubyibuho ukabije……………………
4…Kwisuzumisha kare
5.Kwirinda kurya cyane ibiribwa bituruka ku nyamaswa…
6. Ntanakimwe …nzi……………………
f.Wigeze wunva uburyo bakoresha bapima iyi ndwara mu maraso
oya

68
Yego

Niba ari yego **wabimenyu ute**?
1. ibinyamakuru
2. muganga
3. itumanaho
4. inshuti
5. abavandimwe

**III. Kwisuzumisha kanseri ya prostate**

a. Wigeze ujya kwisuzumisha kubera ibibazo bya prostate

Oya

yego.

**inshuro zingahe?**

1. Imwe
2. Ebyiri
3. Zirenze ebyiri

Wari ufite imyaka ingahe………………

b. Hari ubwo Muganga yagukanguriye akamaro ko kwisuzumisha kare kanseri ya prostate?

1. oya
2. yego

c. Hari muganga yigeze ku gusuzuma akoresheje kanseri ya prostate yinjiza urutoki mu kibuno?

Oya

yego

**inshuro zingahe**

Imwe

zirenze 2….

d. Wigeze upimisha amaraso ngo barebe ko ufite kanseri ya prostate? PSA
yego
Oya

*Kubera iki? (igisubizo kimwe cg byinshi birashoboka)*

Ntabwo icyo kizame nkizi
Ntabukangurambaga nabonye
Nunva iyo ndwara itandeba
Nabuze ubushobozi
Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that Genevieve Benurugo successfully completed the NIH Web-based training course "Protecting Human Research Participants."

Date of Completion: 09/25/2018

Certification Number: 2953227
ETHICAL CLEARENCE

UNIVERSITY OF RWANDA
COLLEGE OF MEDICINE AND HEALTH SCIENCES
CMHS INSTITUTIONAL REVIEW BOARD (IRB)

Kigali, 14/01/2019
Ref: CMHS/IRB/036/2019

BENURUGO Genevieve
School of Nursing and Midwifery, CMHS, UR

Dear BENURUGO Genevieve

RE: ETHICAL CLEARANCE

Reference is made to your application for ethical clearance for the study entitled “Prostate Cancer Awareness and Screening Practices among Adults Males Attending Outpatient at Kigali University Teaching Hospital.”

Having reviewed your protocol and found it satisfying the ethical requirements, your study is hereby granted ethical clearance. The ethical clearance is valid for one year starting from the date it is issued and shall be renewed on request. You will be required to submit the progress report and any major changes made in the proposal during the implementation stage. In addition, at the end, the IRB shall need to be given the final report of your study.

We wish you success in this important study.

Professor Jean Bosco KI. KUTU
Chairperson Institutional Review Board,
College of Medicine and Health Sciences, UR

Cce:
- Principal College of Medicine and Health Sciences, UR
- University Director of Research and Postgraduate studies, UR
Review Approval Notice

Dear Benurugo Genevieve

Your research project: “Awareness and screening practices of prostate cancer among adults males at CHUK”

During the meeting of the Ethics Committee of University Teaching Hospital of Kigali (CHUK) that was held on 15th March, 2019 to evaluate your request for ethical approval of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your research project.

You are required to present the results of your study to CHUK Ethics Committee before publication.

PS: Please note that the present approval is valid for 12 months.

Yours sincerely,

Dr. RUSINGIZA Emmanuel
The Chairperson, Ethics Committee
University Teaching Hospital of Kigali
<<University teaching hospital of Kigali Ethics committee operates according to standard operating procedures (Sops) which are updated on an annual basis and in compliance with GCP and Ethics guidelines and regulations>>
Dear Gabrielle,

This is just to let you know that of course can use my questionnaire. But you need to refer to the bibliography. You can find the questionnaire in section "Supporting Information" into the original article.

Good luck!

Gabriella Di Giuseppe
Professor Associato
Università degli Studi della Campania "Luigi Vanvitelli"
Dipartimento di Medicina Sperimentale
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From: Gorgeous Lady
Sent: Martedì 26 dicembre 2017 08:00
To: Gabriella Di Giuseppe
Subject: Questionnaire request

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questionnaire request

Gorgeous Lady <gludy7312@gmail.com>

To gabriella.djikasuoppe

I am Benarugo Genevieve, nurse at University Teaching Hospital of
Lilongwe, Malawi Africa, and student at University of Rwanda in
oncology track. I am interested in your study conducted titled
"Prostate cancer screening: Knowledge, attitudes and practices in a sample of men in Italy. A survey"
Could you give me the permission for using the same questionnaire? And if it is your pleasure could you send me your used
it in order to do the same
study at my settings?.

Thank you very much while I am waiting your good response.

Regards