

**KNOWLEDGE AND PREVENTIVE HEALTHCARE PRACTICES  
AGAINST PROSTATE CANCER AMONG MASTER OF PUBLIC  
HEALTH MALE STUDENTS, UNIVERSITY OF IBADAN, IBADAN,  
OYO STATE, NIGERIA**

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**AMOO OLUWASEUN PAUL**

**MATRIC NO. : 163665**

**APRIL, 2019**

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OYO STATE, NIGERIA**

**BY**

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**A project in the Department of Health Promotion and Education,  
submitted Faculty of Public Health**

**In partial fulfilment of the requirements for the degree of**

**MASTER OF PUBLIC HEALTH**

**of the**

**UNIVERSITY OF IBADAN**

**APRIL, 2019**

## ABSTRACT

Prostate Cancer (PC) is a Public Health epidemic and the most common cancer in men as it is the second main cause of cancer death globally. There is a gap in knowledge and preventive health practices care against prostate cancer among younger individuals due to reduced perceived susceptibility to the disease. Master of Public Health male students are identified as potential change agents and elites that adopt new knowledge and preventive healthcare practices that can be translated to various communities and therefore, they should have a sound knowledge and preventive healthcare practices against prostate cancer in order to reduce its occurrence. Hence, this study investigated knowledge and preventive healthcare practices against PC among Master of Public Health male students of University of Ibadan.

A descriptive cross-sectional survey using validated semi-structured self-administered questionnaire. A total sample of Master of Public Health male students from all the departments participated in the study. A 25-point knowledge scale was used to assess the knowledge of Prostate Cancer; knowledge Score (KS) of  $>19$  rated as good knowledge,  $10 \leq 19$  rated as fair knowledge and  $\leq 10$  rated as poor knowledge. Also, 24-point scale was used to assess preventive healthcare practices against prostate cancer; practice score of  $>17$  ( $\geq 75\%$ ) rated as good while practice score of  $\leq 17$  ( $< 75\%$ ) was rated poor. The data collected were analysed using descriptive and inferential statistics at  $p \leq 0.05$  level of significance.

Age of the respondents was  $28.5 \pm 6.2$  years. Majority, 78.9% was Christian and Yoruba 66.3% while 24.7% were married. Only 11.4% had relatives with prostate cancer and 65.1% had never received information on PC from healthcare professional before. Few 15.1% of the respondents' had good knowledge, 45.8% had fair knowledge, while 39.1% had poor knowledge. Majority 64.5% had poor practices while 35.5% had good practices of preventive healthcare against prostate cancer. Intake of food that is highly rich in vitamin D was practised by 61.4% daily while 53.0% did not practice a routine medical check-up. Some 39.8% did not participate regularly in physical activity while 31.3% did not take fruits and vegetables regularly. The most reported factors influencing the preventive healthcare practices against prostate cancer included level of education 75.9% and financial constraints 68.1%. About 40.4% reported TV, Radio and Internet as the most effective sources of information on prostate cancer. There was a statistically

significant difference between respondents' level of study and preventive health care practices against prostate cancer.

Many had fair knowledge but poor preventive healthcare practices against Prostrate cancer. This suggests that level of education may not be too effective in enhancing preventive healthcare practices against Prostrate cancer among Master of Public Health male students. Hence, Prostate cancer education, knowledge of prevention and the importance of preventive health care practices among male students should be intensified in various seminar presentations that are been organised in the Faculty, using audio-visual materials as aids to improve Male students' preventive healthcare practices against prostate cancer.

**Keywords:** Prostate cancer, preventive healthcare, Master of Public Health male students, non-communicable disease.

**Word count:** 481

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## **DEDICATION**

This dissertation is dedicated to Almighty God who has crowned the years of my programme with His goodness, and His path dropped fatness.

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## ACKNOWLEDGMENT

First and foremost, praises and thanks to God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully. I would like to express my deep and sincere gratitude to my supervisor, Dr. Oyewole Oyediran Emmanuel (Head of Department) for his professional, quality and excellent contribution and support to this work. I am eternally grateful.

I would like to appreciate the support of my lecturers, Professor O. Oladepo, Professor A. Ajuwon, Professor O. Arulogun, Dr F. Oshiname, Dr M. Titiloye, Dr O. Dipeolu, Dr M. Oluwasanu, Dr John-Akinola, Mrs A Desmennu and Mr J. Imaledo for creating an enabling environment in the department for learning and research. I so much appreciate you all.

I also express my gratitude to the administrative staff of the department for their administrative support throughout my program in the department. To mention a few, Mr. Lanre, Mr. Bello, Mr. Oyeyemi, and Miss Jibola.

Special thanks to my parents, Mr. and Mrs. Amoo, and my best friend, Miss Omobola Ajiboye for their prayers, encouragement, and support throughout this research work.

I am also grateful to my colleagues of MPH 2016/2017 set for appointing me as their class president and also for appointing me as the Public Health Postgraduate Student's Association (PUHPSA) Vice-President. I am really grateful.

## CERTIFICATION

This is to certify that this study was carried out by Amoo Oluwaseun Paul under my supervision in the Department of Health Promotion and Education, Faculty of Public Health, College of Medicine, University of Ibadan, Nigeria.

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## GLOSSARY OF ABBREVIATION

BMI	Body Mass Index
CAPRA	Cancer of the Prostate Risk Assessment
CaPSURE	Cancer of the Prostate Strategic Urologic Research Endeavor
CUA	Canadian Urological Association
DRE	Digital Rectal Examination
FMOH	Federal Ministry of Health
IARC	International Agency for Research on Cancer
IGF-I	Insulin-Like Growth Factor
KAP	knowledge attitude and practice
MPH	Masters of Public Health
NCCP	National Cancer Control Plan
NCDs	Non-Communicable diseases
PAH	Polycyclic Aromatic Hydrocarbons
PB	Prostate Biopsy
PC	Prostate Cancer
PC	Prostate Cancer
PCR	Polymerase Chain Response

PSA	Prostate-Specific Antigen
STD	Sexually Transmitted Disease
WCRF	World Research Cancer and Fund
NIH	National Institute of Health
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

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## **OPERATIONAL DEFINITION OF TERMS**

**Preventive Healthcare Practices:** Preventive healthcare practices in this study are all actions taken to prevent the occurrence of prostate cancer which helps an individual to avoid potential health problems or find them early when they are most treatable. Examples are routine medical check-up most especially for individuals with family history of prostate cancer and recent history of sexually transmitted infections, healthy eating, participation in physical activity, limited alcohol intake etc.

**Prostate Cancer:** This is cancer that occurs in the prostate- a small walnut-shaped gland in men that produces the seminal fluid that nourishes and transports sperm. Prostate cancer is one of the most common types of cancer in men. Usually, prostate cancer grows slowly and is initially confined to the prostate gland where it may cause serious harm (WHO 2011).

**MPH Male Students:** These are Male Students registered for Master in Public Health, University of Ibadan (2016/2017 and 2017/2018).

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background to the study

Prostate Cancer (PC) is the most common male reproductive organ cancer. Among blacks, it has been described as a Public Health epidemic (WHO 2011). It is the most frequently diagnosed cancer among men and second main cause of cancer death in men (Brawley, 2012). In general, all men are at risk for prostate cancer, however, chances of having prostate cancer rise unexpectedly after age greater than 45 years (American Cancer Society, 2012). Prostate cancer is most frequent in the black Caribbean, black African men than white and Asian men (Cancer Research UK, 2012).

African American men have the highest incidence rate of prostate cancer global (Kenerson, 2010). Compared to African-American men, Nigerian men are 10 times more likely to have prostate cancer and 3.5 times more likely to die from it (Abdulkareem, 2009). Lower mortality is reported in developed nations due to early detection, whilst in developing countries, most cancer victims are diagnosed with late stage, incurable tumors, pointing to the need for education schemes and better detection programs (Nakandi, Oranusi, Semugabo, Kittengo, Kitayimbwa, and Kalungi 2013). Studies inside Africa have proven variable incidences ranging from 3.2 per 100,000 in Zimbabwe to 4.3 cases per 100,000 men in Uganda to 4.4 in Senegal and 9.7 per 100,000 in Nigeria. According to Health 24, (2012), it is estimated that 20% of South African men have prostate cancer and has a chance of 78% increase by 2030. In Sub-Sahara Africa, Nigeria ranked first, with Republic of Congo second and Uganda third position respectively with the incidence rate of prostate cancer (Nnodimele, Motunrayo, Ademola, and Omotoyosi 2010).

Preventive healthcare in this study is all actions taken to stop the prevalence of prostate cancer which helps an individual to keep away from potential health problems or discover them early when they are most treatable. Examples are routine medical check-up most specifically for persons with family history of prostate cancer and recent history of sexually transmitted infections, healthy eating, participation in physical activity, limited alcohol etc. The major intention of preventive health care practices is to reduce or curb the opportunity of growing the ailment at the asymptomatic stage thereby lowering the morbidity and mortality rate of prostate cancer among the populace. This is in line with the goal of healthful people

2020, which is to eliminate racial health disparities and reduce prostate cancer death rate to 21.2 per 100,000 males. To achieve this goal, innovative measures should be utilized to overcome the barriers that hinder early preventive healthcare practices for prostate cancer, create mechanisms to partake, assist and rein-enforce men to make healthy choices (Healthy people, 2010).

For preventive health care to be effective in Africa, particularly in Nigeria, it is necessary to have an idea of health knowledge, beliefs, and attitudes towards preventive practices of this disease among men of age 18-35 years (Ajape and Abiola 2010). Although much emphasis has been placed on cancer in a female in Nigeria, especially breast and cervical cancer, little attention has been given to the cancers affecting men.

Currently, there are a few formal programmes targeting prostate cancer which may additionally provide an explanation for the lack of knowledge about prostate cancer among Nigeria population. This study is relevant because it will serve as a baseline for correct planning to be embarked upon through concerned bodies. This study would also give an indication of what may be expected in the general populace, in view that male masters' students in an academic environment are expected to have good knowledge and the knowledge they have should translate to other members in their communities.

Hence, this study aims at investigating the knowledge and practices of preventive health care against prostate cancer among Masters of Public Health male students, University of Ibadan.

## **1.2 Statement of the problem**

Prostate cancer is the number one cancer in males both in incidence and mortality in Africa, constituting 40,000 (13%) of all male cancer incidences and 28,000 (11.3%) of all male cancer-associated mortalities (Akinremi, Ogo and Olutunde 2011). Its incidence and prevalence in black men are in multiples of those from other races in several studies.

Despite the global increase in awareness of prostatic diseases resulting from the widespread availability of screening tools, there is no evidence that the knowledge, attitudes and preventive healthcare practices of Nigerian men have improved regarding prostatic diseases (Rufus, Olanrewaju, Taiwo, and Rotimi, 2017).

The global focus on prostate cancer disparities in black men calls for more efforts from Africa, in all areas of research, along with international collaborations for capacity building.

Prostate Cancer has become the number one cancer in men with increasing incidence and morbidity in men of black African ancestry. Its incidence and prevalence in black men are in multiples of those from other races in several studies. The reason for this is not yet clear cut and an explanation for the disparity may lie in studies involving black men from different populations to see if there is an enhancing factor associated with the racial origins of these men.

Nigeria is an ancestral home of many black men living outside Africa and it is hoped that exploration of research activities emanating from the country may shed some light on the disparity. When compared to African-American men, Nigerian men are 10 times more likely to have prostate cancer and 3.5 times more likely to die from it (Abdulkareem, 2009).

The study by Ezenwa, Kehinde and Ogunjimi (2012) reported that the prevalence of prostate cancer among Nigerian males was 13.3%. These have been attributed mainly to poor knowledge, inadequate health education, lack of a preventive programme for prostate cancer, poverty, poor healthcare facilities and the paucity of specialist urological care (Olapade-Olaopa, Obamuyide, and Yisa, 2008).

Previous studies have focused on older individuals (45 years and above) and little has been done on younger individuals below 45 years of age. This has created a gap in knowledge and preventive health care practices among younger individuals due to reduced perceived susceptibility to the disease among this age group.

### **1.3 Justification of the study**

Masters of Public Health male students represent a subset of Nigeria population who are regarded as potential change agents in their various communities and they are classified as elites that adopt new knowledge and information. The new knowledge and information are expected to preserve, promote, and improve the health and well-being of populations, communities, and individuals. It is unfortunate that many researchers have shown a relatively poor level of knowledge, attitudes, and practices regarding prostate cancer among Nigeria men in various communities and populations most especially in Nigeria.

A good level of knowledge and practices of preventive health care against prostate cancer among Masters of Public Health male students are most likely to reduce the overall morbidity and mortality associated with the disease in Nigeria.

Findings from this study if negative could be a pointer to and evidence to improving knowledge, attitude and preventive healthcare practices against prostate cancer among the

MPH students that will be translated to other male citizens living in the community thereby reducing the burden of the disease in Nigeria.

#### **1.4 Research questions**

1. What is the level of knowledge of Prostate Cancer among Master of Public Health male students of the University of Ibadan?
2. What are the preventive healthcare practices against Prostate Cancer among Master of Public Health male students of the University of Ibadan?
3. What are the factors that influence preventive healthcare practices against Prostate Cancer among Master of Public Health male students of the University of Ibadan?
4. What are the sources of information on Prostate Cancer available to Master of Public Health male students of the University of Ibadan?

#### **1.5 General objective**

To investigate the knowledge and preventive healthcare practices against prostate cancer among Master of Public Health male students of University of Ibadan.

#### **1.6 Specific objectives**

1. To assess the level of knowledge about Prostate Cancer among Master of Public Health male students.
2. To identify preventive healthcare practices against Prostate Cancer among Master of Public Health male students.
3. To determine the factors that influence preventive healthcare practices against Prostate Cancer among Master of Public Health male students.
4. To identify sources of information on Prostate Cancer available to Master of Public Health male students.

#### **1.7 Research hypotheses**

**Ho1:** There is no significant difference between knowledge of prostate cancer of respondents and preventive health care practices against prostate cancer.

**Ho2:** There is no significant difference between the age of respondents and preventive healthcare practices against Prostate cancer.

**Ho3:** There is no significant difference between respondents' level of study and preventive healthcare practices against Prostate cancer.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

Prostate cancer is the second most frequent cancer amongst men worldwide, and the most common most cancers in adult males in eighty-four countries. Occurring greater often in the developed world, rates have also been increasing in the developing world; and as an end result of the large wide variety of instances of prostate cancer detected with the aid of screening it is estimated that in just over a decade prostate cancer will overtake lung cancer as the most common form of most cancers in men around the globe. Mortality charges are usually high in predominantly black populations (the Caribbean, 26.3/100,000 and Sub-Saharan Africa, 18-19/100,000), very low in Asia, and intermediate in Europe and Oceania (Ferlay, Shin, Bray, Forman, Mathers, and Parkin, 2010; Lozano, Naghavi, Foreman and Ahn, 2012). However, different studies observed that prostate cancer used to be speedy growing with age, more than any different malignancy and was poised to be a major Public Health trouble in Sub-Saharan Africa, as the existence of expectancy increases.

Various studies by eminent scholars in Nigeria have proven varying but surprisingly excessive incidence charges among Nigerians. In Ibadan, a study ranked prostate cancer as the number one cancer in Nigerian males, whilst another in Enugu cited that prostate cancer is the most frequent cancers of the urinary tract and is the second most frequent cancer of males, intently following cancer of the liver. Various histologic studies in exclusive facilities throughout Nigeria have shown prostate cancer incidences ranging from 14 to 24.6% (Obiora and Nwosu, 2011).

Early prostate cancer normally has no signs and symptoms, however; it can be detected through screening although it may remain latent in the body without ever inflicting harm. With advanced cases of the disease, men may additionally trip susceptible or interrupted urine flow; the inability to urinate or difficulty starting or stopping urine flow; they want to urinate frequently, mainly at night; blood in the urine; or ache or burning with urination. However, these symptoms are not particular to prostate cancer and can also be due to benign conditions such as prostatic hyperplasia (Prostate-Cancer Report 2014).

## 2.2 Types of prostate cancer

Prostate cancer is labelled by how quick it grows. It has two kinds of growths; aggressive or quickly developing and non-aggressive or gradual growing. With nonaggressive prostate cancer, the tumour both doesn't develop and grows very little over time. With aggressive prostate cancer, the tumour can develop rapidly and may additionally unfold to different areas of the physique such as the bones (American Cancer Society 2016).

## 2.3 Diagnosis of Prostate Cancer

Often, two initial tests are carried out to notice the presence prostatic neoplasm in individual, and these include a digital rectal examination (DRE) and the blood check used to become aware of the presence of prostate-specific antigen (PSA). However, for confirmatory diagnosis of PC, a tissue biopsy is carried out. (American Cancer Society 2016).

- I. **Digital Rectal Exam (DRE):** Here there's an insertion of a gloved lubricated finger into an individual's rectum, a tissue found adjoining to Prostate, to study and test for any abnormality in the texture, shape, and size of the Prostate gland.
- II. **Prostate-Specific Antigen Blood Test:** PSA, a proteinous substance produced through the prostate gland in men is often used as a biomarker for detecting prostate cancer, benign Prostatic hyperplasia, infection or infection of the Prostate. An expanded PSA level in the blood circulation is an indicator of Prostate disorders.
- III. **Prostate biopsy:** Here Prostate tissue is collected, usually with the aid of thin needle insertion into the Prostate gland and the pattern is analyzed in the laboratory to realize the neoplasm in the gland. (American Cancer Society 2016).

## 2.4 Causes and Risk factors of prostate cancer

Researchers do not recognize exactly what causes prostate cancer. But they have determined some risk elements and are trying to examine simply how these factors cause prostate cells to become cancer. An understanding of the causes of prostate cancer stays elusive as the primary risk factors are obesity, age, diet, and household history. Prostate cancer is less likely to appear at age 45 years, however, will become greater frequent with advancing age. Many men by no means know they have prostate cancer. Genetic history may additionally contribute to prostate cancer risk, as suggested by means of associations with race, family,

and precise gene variations etc. According to Noor, Rainy, Agus, and Hamid, (2016), the most frequent threat elements of prostate cancers are:

#### **a. Age**

Older men are greater in all likelihood to be identified with excessive danger to prostate cancer and have decrease average survival. As a result, age regularly performs a role in treatment choice. This risk will increase substantially after the age of 50 in white men who have no family history of the ailment and after the age of 40 in black men and men who have a close relative with prostate cancer. Therefore, it is pretty recommended for older men to get digital rectal examination (DRE) and prostate-specific antigen (PSA) testing screening. A study in Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) tried to inspect the comprehensive danger of Prostate Cancer. High-risk patients have been identified by way of the usage of the validated Cancer of the Prostate Risk Assessment (CAPRA) score. Competing dangers regression used to be used to pick out the unbiased influence of age on cancer survival among older men with high-risk disease. The results confirmed 26% of men of age seventy-five years old presented with high-risk disease (CAPRA score 6 to 10) (Noor et al., 2016).

#### **b. Ethnicity**

Recent studies suggest that ethnicity is an essential risk factor of Prostate Cancer. African American men, West African ancestry from the Caribbean and South American men have a higher incidence and mortality of Prostate Cancer than white men. The lowest incidence of Prostate Cancer is normally found in Asian men, associated no longer only with genetic susceptibility however additionally with the diet, lifestyle and environmental factors. Data from the National Cancer Institute has shown that African American men Prostate Cancer (54.2/100 0 vs 24.7/100 000) appreciably higher than different ethnic races.

The proof of the relationship between genetic issue to the excessive incidence and mortality charge in African American men got here from epidemiologic studies with comparable genetic backgrounds. The analysis implies that Prostate Cancer in African American is biologically and genetically extra aggressive in contrast with European American (Noor et al., 2016).



### **c. Family History**

A family history of Prostate Cancer is a risk factor to Prostate Cancer threat in men. (Zheng, Jieliu, Fredrik, Williams and Henrik 2010). It has been confirmed that the single-nucleotide polymorphisms have been recognized as having a giant association with Prostate Cancer when existing together with family records of Prostate Cancer. Health Professional Follow-Up Study, follow up 3,695 sufferers with Prostate Cancer from 1986 to 2004 and determined that there was once a 2.3-fold expanded risk of Prostate Cancer with a household history of Prostate Cancer in both a father and a brother.

Furthermore, that finding reported a 2.16- and 1.95-fold improved Prostate Cancer hazard when the father or brother was once recognized with Prostate Cancer at <60 and 60 years of age, respectively. An increased risk of early onset of Prostate Cancer taking place at age <65 years was once evident in men with family records of Prostate Cancer analyses have confirmed the association between family history of Prostate Cancer and the threat of Prostate Cancer in men. It has been proposed that there may be a hereditary issue to Prostate Cancer risk. This has been attributed to genes in 7 different loci. Although the position performed by these genes in the development of Prostate Cancer is unknown, it is estimated that they make contributions to less than 5–10% of the ailment risk. Some authors attribute up to 40% of all Prostate Cancer to genetic factors (Noor *et al.*, 2016).

### **d. Insulin-Like Growth Factors**

Insulin-like increase factor (IGF-I), a polypeptide with mitotic and antiapoptotic effects. It has validated to play a necessary position in Prostate Cancer biology and to be implicated in each mitogenic and anti-apoptotic events in Prostate Cancer cell lines. The Insulin-Like Growth Factor family includes the aggregate of two ligands (IGF-I and IGF-II), two receptors (IGF-IR and IGFIIR), six high-affinity binding proteins (IGFBPs1–6), a massive team of IGFBP proteases and a new team of proteins, which is low-affinity IGFBP-related proteins (IGFBP-rPs). Members of this family shape a community of interactions both among themselves and with other GF families and their signaling pathways.

Several studies have related serum tiers of IGF-I to Prostate Cancer risk, both amongst instances and controls, and some of these studies, but now not others, have shown a direct

association between IGF-I and most cancers risk. One of the most informative research is a prospective nested case-control investigation of 152 Prostate Cancer sufferers and controls derived from the Physicians' Health Study. Elevated serum IGF-I could be determined in men at least 5 years prior to the prognosis of Prostate Cancer (Noor et al., 2016).

#### **e. Sexually Transmitted Disease (STD)**

Several epidemiologic studies have advised that elements associated with sexual behaviour and STDs might also be related to Prostate Cancer. In 1990, several studies reported that HPV type 16 and 18 are present in normal and cancer tissues of human prostate. Since 1990, many studies have detected high-risk HPV in Prostate Cancer tissues by way of Southern Blot and/or polymerase chain response (PCR) analysis. It concluded that contamination and subsequent irritation in the prostate are speculated to be quite a few microorganisms that cause prostatitis or sexually transmitted infections may be an important risk element in the pathogenesis of Prostate Cancer.

Approximately 13 studies looked for the presence of HPV in prostate carcinomas. These investigations published that the presence of these viruses varies from 4.2% to 53%. Other research also examined the modern epidemiological proof for the affiliation between unique STD and Prostate Cancer. Significant elevated ORs for Prostate Cancer had been confirmed for any STDs (1.48, 95% confidence interval [CI] 1.26-1.73), gonorrhea (1.35, 95% CI 1.05-1.83), and human papillomavirus (1.39, 95% CI 1.12-2.06). This meta-analysis provides proof of a greater rate of Prostate Cancer in men with a history of exposure to Gonorrhoea, HPV, or any STD.

Recent studies also revealed that men who had infections with the STD trichomoniasis were only likely to increase Prostate Cancer years later, in contrast to men with no documented proof of prior infection, they have been nearly three times as likely to die of the disorder once they had Prostate Cancer. The finding suggests that infections may make Prostate Cancer extra aggressive and more in all likelihood to progress (Noor et al., 2016).

#### **f. Obesity**

Obesity is suspected to be a risk factor for aggressive Prostate Cancer due to its associations with altered circulating degrees of metabolic and sex steroid hormones involved in prostate

improvement as well as oncogenesis. It was once hypothesized that underlying the relationship between adiposity and tumor development involve adiposity associated changes in metabolism and endogenous hormone levels. An important particular metabolic end result of obesity, in particular when combined with bodily inactivity, is a decreased tissue response to insulin, mainly in phrases of decreased uptake of glucose. This insulin resistance leads to chronically increased blood ranges of insulin, which is a growth-enhancing hormone and accordingly is a biologically plausible risk factor for cancer improvement and progression.

One possible rationalization for the lower danger of Prostate Cancer diagnosis among obese men is that cancers might also be greater challenging to detect. Consequently, obese men are less likely to have an elevated PSA, much less likely to endure a biopsy, and for this reason much less likely to be recognized with Prostate Cancer, in addition, overweight men have large prostate size making most cancers detection at biopsy greater difficult. Because obesity is a potential factor leading to detection of Prostate Cancer, clinicians need to reflect on consideration on Body Mass Index (BMI) when interpreting PSA concentration, Inclusion of BMI along with other elements that are presently covered (race, rectal screening, and household history) in the present Prostate Cancer hazard calculator, enhance its performance.

Three meta-analyses mentioned a superb association between weight problems and Prostate Cancer incidence. The relative risks (RRs) in these research have been modest but consistent, from 1.01 (95% self-belief interval [CI], 1.0–1.02) per 1 kg/m<sup>2</sup> expand in BMI to 1.05 (95% CI, 1.01–1.08) and 1.03 (95% CI, 1.0–1.07) per 5 kg/m<sup>2</sup> increment in BMI.<sup>24</sup> Data from three National Survey that existing learn about linking proof from three giant nationally representative samples of the US populace notes that weight problems are associated with higher Prostate Cancer progression and mortality despite an association with lower prostate cancer incidence (Noor et al., 2016).

#### **g. Smoking**

Tobacco and cigarette smoke contains over 4,000 chemicals, amongst which more than 60 are listed as class 1 or class 2 carcinogen according to the International Agency for Research on Cancer (IARC). However, constituents of cigarette smoke, such as polycyclic aromatic hydrocarbons (PAH), required metabolic activation, evasion of cleansing processes, and subsequent binding to DNA to exert their carcinogenic action. Therefore, functional

polymorphisms in genes involved in PAH metabolism and detoxification can also alter the impact of smoking on Prostate Cancer.

An association with smoking could also have a hormonal basis: male people who smoke have been determined to have extended levels of circulating androsterone and testosterone, which can also amplify Prostate Cancer risk or make a contribution to most cancers progression. Most studies inspecting relationship between smoking and Prostate Cancer recurrence or Prostate Cancer-associated mortality demonstrated that smoking-related to an increase in Prostate Cancer recurrence and mortality, even after controlling for more than one element such as the extra superior malignant disorder at presentation (Noor *et al.*,2016).

#### **h. Alcohol Consumption**

Alcohol consumption is one of the most important risk factors for human cancers, but doubtlessly one of the largest avoidable factors. Alcohol consumption is usually measured in drinks per day, with a “typical” drink of alcohol containing about 15g of ethanol irrespective of the kind of beverage consumed (beer, wine, and liquor, straight or mixed). Alcohol use, and especially heavy use maybe a feasible risks factor of cancers which includes prostate. Evidence suggests that the impact of alcohol is modulated by means of polymorphisms in genes encoding enzymes for ethanol metabolism (e.g. alcohol dehydrogenases), folate metabolism and DNA repair.

Recent research reported that there used to be a large relationship between higher Prostate Cancer risk and higher range of alcohol intake. It confirmed that RR of Prostate Cancer danger increased from 1,05 for one alcoholic drink per day to 1,21 for four alcoholic drinks per day (Noor *et al.*, 2016).

#### **i. Vasectomy**

Vasectomy is the most frequent of male contraception in the United States, with approximately 500,000 procedures performed annually. It has been related to some research with accelerated Prostate Cancer risk. There is no proven organic mechanism that would possibly give an explanation for an association between vasectomy and Prostate Cancer been identified. In studies demonstrating small relative risks, data have been restricted by using

methodological shortcomings and potential biases, inclusive of detection and misclassification bias (Noor *et al.*, 2016).

## **j. Diet**

According to Noor *et al.*, 2016, diet is one of the major causes of prostate cancer among men. There are different diets that increase the risk of developing prostate cancer among men which are:

### **i. Saturated animal fat**

A high-calorie intake of saturated animal fat has frequently been related to a multiplied risk of Prostate Cancer due to increase testosterone levels. Recent studies concluded that animal fats consumption per capita is positively associated with the incidence and mortality of Prostate Cancer. The research revealed a relationship between fat consumption and advanced Prostate Cancer with OR=1.6-2.9.

A current case-control population-based study in patients  $\leq 60$  years discovered a statistically significant Prostate Cancer risk comparing high and low consumption of total fat to Prostate Cancer risk with OR = 2.53 (CI 95%: 1.72-3.74), saturated fats with OR = 2.49 (CI 95%: 1.69-3.66), monounsaturated fat with OR = 2.69 (CI 95%: 1.82-3.96), and polyunsaturated fat with OR = 2.34 (CI 95%: 1.59--3.46). The possible biological mechanisms involved between saturated animal fat and Prostate Cancer risks are the following: (a) high energy consumption will increase basal metabolism and insulin growth factors, tumor proliferation, (b) lipid metabolism generates free radicals, leukotrienes, prostaglandins, (c) promotes prostate carcinogenesis through androgen (Noor *et al.*, 2016).

### **ii. Meat (red, smoked, and seasoned)**

Meat has been associated with carcinogenesis as located in the high correlations between per capita meat consumption and most cancers incidence and mortality. World Research Cancer and Fund (WCRF) study showed that consumption of <500 g of red meat per week (OR = 0.77; 95% CI: 0.61, 0.98) was a significant predictor of reduced risk of an incredibly aggressive Prostate Cancer. Recent research without delay associates the excessive intake of these varieties of meat with the hazard of Prostate Cancer and Prostate Cancer Mortality.

Cooking at increased temperature (125-300°C) causes the formation of mutagenic heterocyclic amines. Studies have confirmed that men consuming  $\geq 5$  servings/week of processed meat had a greater threat of Prostate Cancer in contrast with men who eat  $\leq 1$  servings/ week. Similarly, excessive consumption of red meats accelerated Prostate Cancer risk amongst black men (Noor *et al.*, 2016).

### iii. Calcium, Milk and Dairy Products

Milk and dairy products make contributions to expand saturated animal fat level as it provides excessive calcium content. A meta-analysis of publications showed that men with high dairy intake (RR=1.11; CI 95%: 1.00-1.22) and calcium (RR=1.39; CI 95%: 1.09-1.77) had significantly greater risks of Prostate Cancer than men with lower dietary intake, as well as in aggressive cases (RR=1.33; CI 95%: 1.00-1.78) and (RR=1.46; CI 95%: 0.65-3.25), respectively. Dairy products, significantly increased the threat of Prostate Cancer when in contrast with those who consumed the most versus the least; a 63%, 53%, and 52% multiplied risk, respectively. There is an organic opportunity for the role for calcium in prostate carcinogenesis. Intracellular calcium pools have been proven to manage Prostate Cancer cell growth and susceptibility to apoptosis. Therefore, small alterations in calcium homeostasis could result in increased proliferation, differentiation, and apoptosis in Prostate Cancer cells (Noor *et al.*, 2016).

## 2.5 Prostate cancer in Nigeria

Prostate cancer disparities in the black man call for concerted research efforts. This review explores the trend and attention of Prostate cancer research activities in Nigeria, one of the ancestral countries for black men. It seems to stumble on the region of the Nigerian research environment in the world progress on Prostate cancer disparities. Its incidence and prevalence in black men are in multiples of those from other races in various studies. The reason for this is no longer yet clear cut and rationalization for the disparity may lie in research involving black men from different kind populations to see if there is an enhancing factor related with the racial origins of these men (Akinremi, Ogo and Olutunde 2011).

Nigeria is an ancestral home of many black men living outside Africa and it is hoped that exploration of research activities emanating from the country may shed some light on the disparity. Odedina Scrivens, Campbell, Barber, Ferrel, and Dunn 2000, advised the need to focus on areas of genetic and environmental risk factors in the first group of the earliest

publications about Prostate cancer in Nigeria was once in 1973 from the nation's first tertiary medical institution in Ibadan, reporting low incidence, followed by using a lull of nearly one decade.

In 1980, the incidence rate of Prostate cancer used to be said as almost comparable for black men in Ibadan and Washington and from then on, research work from surgeons and pathologists, from the south to the north, east to west, persisted to document increasing incidence of Prostate cancer (Badmus, Adesukanmi, Yusuf, Oseni and Bakare 2010).

Apart from epidemiology, other areas of research encompass KAP (knowledge attitude and practice) studies (poor education of caregivers and population), histopathology (mostly adenocarcinoma), prognosis (digital rectal examination [DRE], prostate specific antigen [PSA], ultrasound), clinical features (late presentation and high mortality), and prevention (lifestyle, schooling and screening).

In 1973, Nkposong and Lawani, urologists from the University College Hospital, Ibadan, South West Nigeria, at the time the only referral center for cancer treatment, mentioned a low but increasing incidence of prostate cancer. It moved from 8th role of male cancers in 1969 to 2nd place in 1979, with liver cancers leading the pack.

Ogunbiyi and Shittu from the Ibadan Cancer Registry in 1999 introduced a definite increase of Prostate cancer among Nigerians. It had risen from 8th position in 1969 to 1st position in 1996, being 11% of all male cancers.

Angwafo, whilst reporting 93.8/105 incidence from Cameroon in 1994, requested the question "Is prostate cancer uncommon in black Africa?" whilst Osegbe in a document from Lagos where the clinic incidence used to be at 127/105, surmised that incidence of Prostate cancer may additionally be underestimated in Nigerians. Similar reviews of increasing hospital-based incidence came from other parts of Nigeria with rates of 61.3/105 from Calabar and 182.5/105 from Ife. The stance of Globocan has since changed with the 2008 file that Prostate cancer had emerged as the top male cancer and fourth commonest cancer in Nigeria (Angwafo 1998). Studies from Kano, Zaria, Benin, and Maiduguri showed Prostate cancer as 16.5%, 9.2%, 7.13% and 6.15% of male cancers.

Prostate cancer research in Nigeria is growing and multifaceted. There is a need to collate figures into the National Cancer Registry. Education and knowledge about prostate cancer are sparse and even medical students need better training in the digital rectal examination.

Patients regularly present late with complications, pathological prognosis usually of adenocarcinoma, resulting commonly in palliative orchiectomy. Routine screening is not practiced and most PSA testing and digital rectal examination emanate from surgical clinics. The disparity in prostate cancer incidence and mortality in the black man calls for concerted efforts from all and sundry to include all areas of research. Nigerian researchers stand at a vantage position to carry out local work as well as collaborate with different stakeholders all over the world (Akinremi, Ogo and Olatunde, 2011).

## **2.6 Knowledge of Prostate cancer in Nigeria**

The finest weapon towards most cancers is knowledge and it is effective in reduction, prevention and early detection (CANSAs, 2013). Knowledge about cancer burden allows the development, implementation, monitoring, and contrast of most cancers techniques that prevent, remedy and care. Knowledge about prostate cancer is defined as having enough information about the signs, symptoms, reasons and health-seeking behaviour for prostate cancer. This know-how is lacking in many low- and middle-income countries, making most cancers control efforts less advantageous (International Agency for Research on most cancers and most cancers Research UK, 2012). It has been mentioned that in the developed world the probability of being recognized with most cancers is greater than twice as excessive as in developing countries. A common challenge encountered is a late presentation by affected patients (Jo 2013). This has been ascribed ordinarily to poor awareness, inadequate health education, lack of screening programs for prostate cancer, poverty, bad healthcare facilities and the paucity of expert urological care (Olapade-Olaopa *et al.*, 2008; Eke and Sapira, 2002; Dawam, 2000). According to Akinremi *et al.*, 2011, research printed that education and knowledge about prostate cancer are very low in Nigeria, and cautioned that medical college students need higher training.

Ojewola Tijani, Jeje, Anumobi and Sola 2012, mentioned that the level of awareness about prostatic ailments remains low among the men populace in Nigeria with primary sources of facts being radio and television programmes and this provides to the body of evidence that awareness of prostate cancer and screening practices are still poor in Nigeria. Olapade-Olaopa *et al.*, 2008 suggested that most adult Nigerian men are ignorant of the prostate gland and its illnesses in widespread and prostate cancer irrespective of their socioeconomic reputation and level of education. Health education programs are therefore required to increase the awareness and knowledge of the men about this predominant health issue to



reduce the health burden due to the disproportionately high morbidity and mortality from the disease of the gland.

Oladimeji *et al.*, 2010 additionally stated that the knowledge of prostate cancer and screening services is low. In light of these result, larger prostate cancer health education and provision of routine screening provider centers for prostate cancer for older men are crucial. According to Maxwell *et al.*, 2017, it was reported that the level of education is extensively associated with the level of prostate cancer knowledge. This is of the same opinion with effects from several studies (Nakandi and Semugabo, 2013; Winterich 2009; Mofolo, Betsu and Kenna 2015; Deibert, Maliki and Kwan 2007). Older men have higher knowledge about prostate cancer than youthful men, due to the fact that older men experience a higher frequency of urinary signs due to benign prostatic hyperplasia or prostate cancer, resulting in more visits to the physician where prostate cancer is discussed. This is consistent with results from a study carried out amongst Ugandan men (Nakandi *et al.*, 2013). However, different studies have proven that older men have a higher knowledge of prostate cancer than younger men (Arnold-Reed, Hince and Bulsara 2008).

## **2.7 Preventive Health Care Practices against Prostate cancer**

Literature has recommended different methods of reducing prostate cancer incidence, extremely good amongst them are; education, awareness, a way of life and Screening. According to Heba Al-kotb and Gaballah (2017), one of the main methods to reduce the incidence of prostate cancer is early detection by screening. Screening can be executed through the prostate-specific antigen blood test (PSA) and the digital rectal exam (DRE). The important objective of screening is to minimize the possibility of coming up with prostate cancer at an asymptomatic stage. This enhances early detection and subsequent therapy because of people's negative attitudes, poor knowledge and beliefs. Similarly, Ogunsanya. (2017) and Arafa (2012) argued that, screening ensures detection of prostate cancer at its earliest stages, before improvement of any structure of signs and symptoms reason being that, some of the signs experienced via men might point out the presence of prostate cancer and these signs can be related to different prostate disorders, such as Benign Prostate Hyperplasia (BPH) or prostatitis requiring a more thorough work up. Similarly, lower mortality is reported in developed countries due to early detection, while in developing countries, most cancers victims are diagnosed with late stage, incurable tumors, pointing to the need for education schemes and better detection programs (Nakandi *et al.*, 2013).

In any other instance, carrying out rigorous educational programs with the aim of changing people's health belief helps in prostate cancer prevention. This can be completed via distinctive methods; team education and multimedia training (Heba and Gaballah 2017). According to Demircelik, Muzaffer and Esra (2016), Multimedia education, or computer-based coaching present a new educational technique that can be performed by using communicating the concepts and instructional substances in an easier, extra wide and appealing along with text, sound, picture and video and has a unique potential and workable to convey information for patients and especially those with low literacy. In addition to the aforementioned measures, increasing knowledge and awareness about prostate cancer have also been recognized by Egbera, (2015) and Schiff *et al.*, (2017) as methods of prevention and early detection which is integral in the discount of prostate cancer mortality in the country.

A review by Lin, Williams and Stephen (2015) on the function of nutrition and dietary intervention in Prostate cancer reduction reported that Low carbohydrates intake, green teas, soy protein, omega-3 (w-3) fat, tomatoes, and tomato products confirmed promise in the reduction of Prostate Cancer risk, while a greater intake of saturated fat and  $\beta$ -carotene classification can make bigger risk. According to the review, a 'U' structure relationship may exist between folate, vitamin C, vitamin D and calcium with Prostate Cancer risk. Despite the inconsistent and inconclusive findings, the possibilities for a function of dietary intake for the prevention and therapy of Prostate Cancer are promising. The aggregate of all the really useful elements for Prostate Cancer threat reduction in a wholesome dietary sample may be the pleasant dietary advice. This sample consists of wealthy fruits and vegetables, decreased refined carbohydrates, total and saturated fats, and reduced cooked meats.

Further, cautiously designed potential trials are warranted in supportive of this, Canadian Urological Association (CUA), (2014), opined that eating regimen can decrease prostate cancer risk. Accordingly, overweight men are more probably to boost prostate cancer. They identified the following; a food plan low in fat, charred meats, and processed meats can also reduce the risk of prostate cancer. Another proof that cessation of smoking as recognized can help limit the hazard of prostate cancer. Also, ingesting a diet excessive in veggies reduces the risk of prostate cancer. Sulfur-containing veggies such as, cabbage consist of antioxidants that can also prevent prostate cancer. Fish consumption has also been identified to reduce prostate cancer risk. Fish contain Omega-3fatty acids and are thought to be protecting towards prostate cancer.

According to Noor *et al.*, 2016, the workout is one of the modified lifestyle therapy that appears to provide many benefits and exceptionally few facet effects. Lack of workout has additionally been linked to improved Prostate Cancer risk. Studies have shown that veterans who exercised have been drastically less Prostate Cancer risks. Several studies confirmed that bodily energetic Prostate Cancer patients have drastically had a greater quality of life, less fatigue, and decrease PSA levels and delay in initiating ADT by means of two years in contrast with less active Prostate Cancer peers. They also have considerably decreased serum insulin and insulin-like growth aspect (IGF-1), higher IGF binding protein (IGFBP-1), and a decrease risk of high-grade disorder (Gleason score 7 or greater) compared with less active Prostate Cancer patients.

## **2.8 Factors that influence preventive healthcare practices against Prostate Cancer**

### **i. Level of Education**

The Nigerian literacy level is 61%, and in accordance to research performed in the Southern part of the country where literacy degree is greater than the Northern part indicates that there is a significant relationship between educational level and knowledge of cancer (Sani, Florence and Lydia, 2016).

Educated men and women face appreciably lower dangers for any cancer. The estimated coefficient on schooling indicates how education covaries with the likelihood of having died of any cancer is about -0.0016. The estimated coefficient on the likelihood of being recognised with any most cancers is about -0.0012 (2 percent) (Edwin Leuven, Erik Plug and Marte Rønning 2014).

Although, these coefficients show up small, they are relatively significant. Men with extra education face considerably lower dangers of developing cancer (-0.0007 (16percent)). The regression association between training and the most cancers mortality charge is -0.0015 [10 percent] for men. The association with the probability of cancer diagnose is -0.0009 [2 percent] for men. The correlations between schooling and cancer threat at common most cancers sites vary in sign.

These outcomes are the same as many of the estimates that have appeared in the clinical literature, which ignore the correlation between the individual's academic attainment, endowments, and other unobserved characteristics.

## **ii. Health Workers attitudes towards Prostate Cancer**

Today, the influence of the negative attitude to work by health care providers in public and non-public hospitals in Nigeria is especially worrisome. Years of bad attitudinal problem mainly in the public quarter has similarly endangered lives of patients, many already in critical circumstance (Vanguard 2011). Investigations with the aid of Good Health Weekly show that attitudinal hassle is at each and every level of care. There is no exemption. All cadres of healthcare companies are responsible for this terrible attitude, even at the slightest provocation. Unfortunately, Nigerians in search of Medicare in any of the hospitals, every day have their fair shares of the worrisome fashion even in the face of the most life-threatening emergencies. It does not follow, whether demise affected person is in for emergency room treatment, pursuits doctor's appointment, a laboratory test, or any appointment for that matter, the poor mind-set looks to have turn out to be a way of life, doing greater harm than desirable to the health sector. There have been arguments about authentic expectations of health workers for higher conditions of service, however, this only puts the patient on the firing line. It appears health workers have a tendency to rapidly overlook they are in commercial enterprise solely to care for patients, to make sure that the people's health is maintained in the first-class feasible state of top health in terms of their mental, physical and religious wellbeing. Has there ever been a time health workers went on strike for the sake of the patient, both to protest the lengthy working hours at the outpatients' department or the lack of drugs?

In most other nations of the world, the patient is central to health policy. Whether it is about the fundamental package of care that is guaranteed, the waiting instances before treatment get entry to life-saving medical interventions, or vaccination coverage, the affected person is continually central to policy. But in Nigeria, a patient is extra possibly to die of a heart attack as an end result of the despicable rudeness by means of health workers than from the disease that brought him or her to the health facility in the first place. Critical observers are of the view that health institution is dropping its center of attention of true problem for sufferers as substitute employers are shifting on to fabric possessions. They now reflect on consideration of the affected person a nuisance. They see them as too demanding, trouble and waste of their time. Perhaps this explains why Nigeria files a widespread variety of patient deaths even earlier than they are attended to at the variety of hospitals (Vanguard 2011).

### **iii. Financial constraints**

Student health facilities are funded through a combination of fee-for-service, identified (prepaid) health fees, insurance plan reimbursement, and well-known college assist. Some School health centers increase these sources through innovative preparations with community or nearby health departments, research grants, or other fund-raising activities. Private colleges are more possibly than public institutions to require proof of health insurance before entry. This is additionally true of health professions schools. Health services, like most other factors of universities, exist as an end result of college policy. These insurance policies are extremely important to the day to day operation of health centers, as they dictate the entirety from health middle resource base to hiring policies. Policies and standards, which sooner or later govern college health care activities fluctuate in proportion to the heterogeneity of colleges and universities themselves.

### **iv. Closeness of the Health facilities**

The World Health Organization (WHO) (2009) and The International Council of Nurses (2006) state that the overall goal is absolute best viable health for all people, and supplying remarkable care is one strategy for accomplishing this goal. Patient has regularly been related with powerlessness in opposition to the clinical facilities. In the era, when one talks about the innovations and technological advances in scientific science, the basis of all such developments which is ensuring that each patient receives the needed care have to not be forgotten. It is equally essential to decide if the patient is satisfied with the care he or she receives. Patient pleasure is the notion most regularly used in research inside the healthcare sciences. Access to healthcare offerings is influenced by several factors. These consist of 1) geographical accessibility – the distance or time between a health care and a user; 2) availability – having get entry to terrific health care providers with the fundamental substances and equipment; 3) economic accessibility – pricing of health services, ability of customers to pay for services, transport charges to users and 4) acceptability – receptiveness of health carrier providers to the social and cultural practices of the communities in which they serve (Thandi, 2018).

University of Ibadan health center which is referred to as Jaja Clinic placed at the center of the school round the administrative building. It admits a team of workers and students of the University and gives relevant health services such as minor treatments and referrals to the University College Hospital when necessary. University College health facility is a federal

teaching health center located at the extension site of the University and it is open to all student and group of workers which includes contributors in the neighborhood. It offers each prevention health care, curative and palliative care for cancer-associated problems.

Accessibility of testing services also appeared to influence the decision of men to be screened (Enaworu, 2016). A participant who works as a member of a group of workers at the health facility, working in surroundings which provided him with convenient and free medical services influenced the everyday use of clinical services and testing. However, many contributors pointed out that the lack of easy access to testing services had a negative influence on undergoing testing (Enaworu, 2016).

#### **v. Family history**

A family history of prostate cancer has constantly been related with an accelerated danger of prostate cancer that varies according to the degree of the relationship, the variety of relatives affected, and the age at diagnosis.

Between 10% and 15% of men of African descent who have prostate cancer have been estimated to have one or more relatives with the disease. In a recent meta-analysis of 33 studies (25 case-control and 8 cohort) carried out in Europe and North America, Kiciński and Vangronsvield (2016) confirmed that the danger of prostate cancer increased by 2.5-fold amongst those who had a first (father/brother) degree relative with the disease (pooled rate ratio [RR], 2.48; 95% confidence interval [CI], 2.25–2.74 vs no relative in 26 studies) and was higher among these whose first degree household have been identified earlier than the age of 65 years (RR, 2.87; 95% CI, 2.21 –3.74 vs these recognized at age  $\geq$  65 years in 5 studies). Evaluations of the type of relative revealed that having a brother with prostate cancer increased the risk by 3.14-fold whilst having a father with prostate cancer increased the risk by 2.35-fold. Men who had two or more first-degree spouse and children with prostate cancer had 4.39 (95% CI, 2.61 – 7.39) times the threat of prostate cancer compared with those with none. However, most prostate cancers are sporadic (85% of all cases) and solely 15% are familial or hereditary, indicating that different factors ought to be involved in the carcinogenesis process in the prostate (Sierra, 2016).

#### **vi. Government Support programmes**

Currently, there is no accessible data on government support programs implementation to stop the incidence of prostate cancer. However, there is a national cancer control plan from

the federal ministry of health that was approved by the Honourable Minister for Health, Nigeria, Professor Isaac. F. Adewole. This National Cancer Control Plan (NCCP) outlines key desires and targets for Nigeria's most cancers control efforts, and detail the strategies that will allow the country to achieve its aims while recognizing essential challenges. The NCCP is guided by a set of core principles, namely: accountability, ownership, equity, integration, efficiency, sustainability, flexibility and transparency. Reflecting on the most current Cancer Control Plan (2008-2013), seven priority areas of action were identified to guide cancer control initiatives in the country within the next 5 years and beyond.

Within the Cancer Control Plan, the Strategic Framework enumerates techniques to improve the country's cancer control program. The strategic framework for all the priority areas of action hinges on Health System Strengthening. The Strategic Framework's techniques are categorized primarily based on precedence areas of action, and overall performance indications have been developed for each. The implementation framework details the activities, output, risk/mitigation strategies, accountable parties and predicted delivery date for each. The monitoring and evaluation (MandE) framework describes an everyday reporting structure and seeks to make sure that data are accessible in a well-timed manner and used in choice making. The National Cancer Control Program of the Federal Ministry of Health (FMOH) will serve as the coordinating body for the implementation of the National Cancer Control Plan.

The FMOH, all 36 States and Federal Capital Territory (FCT) with the support of the countrywide cancer guidance committee and development partners, will be responsible for the implementation of the plan. The states will boost annual operational plans that feed into the National Cancer Control Plan. The National Cancer Control program will help the states with the continuous monitoring and assessment of the plans to ensure accountability. Consequent upon the above, the whole budget to enforce this graph for the period January 2018 to December 2022 is estimated at NGN 97, 321,725,422.53 (USD 308,957,858.48). It is anticipated that the authorities (Federal and State) will provide 75% of the funding required to implement this plan while the donors and development companions will help by using bridging the funding gap of 25 percent over the next five years.

Finally, the Cancer Control Plan was once developed via a consultative procedure that covered stakeholders from the government, Federal Ministry of Health, academia, expert associations, the pharmaceutical industry, improvement partners, most cancers survivors and

various facets of society. External opinions were supplied via the Center for Global Health, at the National Cancer Institute, and a team of oncologist from Stanford University, both in the United States of America.

### **vii. Peers support**

Many men found out about prostate cancer screening from friends who had been identified with prostate cancer themselves. One participant reported that a friend who had spoken about his ride of being identified with prostate cancer and had commenced treatment at an early the stage which saved his life had triggered his own choice to be examined (Onaworui and Ranjit 2016).

Another participant indicated that understanding friends and loved ones who had suffered from prostate cancer was once a contributing factor to him getting access to testing. Participant B also recalled that observing the health of an in-law deteriorate due to the fact his cancer had ended up a terminal, coupled with a friend's experience of prostate cancer made him take issues of his prostate health more seriously. This study also found that being married, or in a relationship, influenced the pressure to endure testing. Participant cited that his wife induced his selection to come for testing.

There are numerous theoretical views supporting the choice of friends as the providers of health education interventions. For example, dynamic social has an effect on concept (DSIT) postulates that conversation can extra correctly increase an individual's likelihood of changing behavior if the communicator is similar and credible; the verbal exchange is social, physically, or temporally immediate; and there are more than one persuasive change agents communicating about a new practice.

Programs in search of to use friends in Public Health campaigns can use evidence maps to become aware of interventions that have formerly proven advisable effects. Those seeking to produce health outcomes may additionally benefit from identifying the mechanisms by which they expect their program to produce these effects and associated proximal outcomes for future evaluations.

### **viii. Health awareness**

Studies amongst native urban Nigerian population (with less than average education) showed that a large proportion of the men have been unaware of prostate cancer along with screening



for the disease using the PSA method (Ajape *et al.*, 2009). Over the last two decades, increasing emphasis has been placed on health communication strategies that are collaboratively designed, implemented, and evaluated. Consequently, more than a few profitable strategic health communications campaigns have been developed, distinctly in the human immunodeficiency virus/acquired immune deficiency syndrome arena. However, as regards prostate cancer prevention the awareness is particularly low. Hence, The Ministry of Health at national and county levels, and cancer stakeholders to promote information on the signs and symptoms, treatment and preventive measures of prostate cancer that will enhance further awareness and understanding of the disease.

#### **ix. Academic stress**

Although many studies observe the organic phenomena that mediate the relationship between stress and illness, more research is needed involving psychological variables that may mediate this relationship. Research also suggests that individuals who are psychologically healthy have a larger experience of control than do those suffering from psychological distress. These wholesome humans overestimate the amount of control and invulnerability that they have, are greater confident about their capability to gain control, and underestimate risk in positive conditions (Roddenberry and Renk, 2010).

They additionally attribute unsuccessful effects to external elements to defend their experience of control. Such findings also extend to those experiencing physical illnesses. In general, research suggests that persons who consider that they can do something about their ailment and their associated stress have a more superb psychological adaptation relative to those who do not maintain such beliefs. For example, the personal control of patients being handled for most cancers is linked to increases in their self-esteem, high-quality of life, and positive mood. Further, individuals' sense of control when they are physically sick is associated with their bodily symptoms. Given these findings, it is apparent that individuals' experience of control is associated with their experience of different psychological and bodily symptoms.

Another achievable outcome for the relationship between stress and illness is the utilization of health services. Since stress is implicated in the causation of illness, it most likely additionally is related indirectly to the utilization of health services. For example, research has pronounced that expanded utilization of these services is associated with daily stress. Another study suggests that there is a widespread advantageous relationship between

psychological distress and the utilization of principal health care services, even after controlling for a number demographic variables (e.g. health status) Roddenberry *et al.*, (2010).

Further, in an examination of the relationship between stress and the utilization of health services, findings using a diary technique (i.e., a brief one-page paper that assesses day by day stressful events, bodily symptoms, and participants' utilization of health services) advocate that stress influences the utilization of health services. Given these findings, the utilization of health services seems to be essential in the relationship between stress and illness; as a result, further research is warranted.

The findings of this study guide the relationship between an elevated degree of prevalent stress and improved reports of illness (i.e., both psychological and bodily symptoms). Further, participants' experience of increased academic stress (i.e., stress experienced with regard to examinations, papers, introduced quizzes) is related to increased stages of psychological signs and symptoms however no longer physical symptoms. As participants were beginning their psychological instruction for their upcoming final examination period when they participated in this study, they solely may have been experiencing psychological signs and symptoms rather than physical symptoms. Generally, these findings are steady with those of preceding studies that notice a relationship between stress and individuals' functioning.

In particular, college students are at an age where they experience a multitude of life adjustments and, at the equal time, are striving to prevail in academics. These elements can also forestall them from focusing on their very own well-being. It also might also be that the act of seeking services is sincerely considered as a stressor itself and, as a result, is avoided. In addition, many individuals propose high levels of interior locus of control and self-efficacy, which may additionally have avoided them from seeking these services.

## **2.9 Sources of information on prostate cancer**

The information received about prostate cancer helps to increase the awareness and knowledge levels, demystifies certain perceptions about the disease, and assist improve a fantastic mind-set in the direction of prostate cancer and its early detection. The media is grouped into the broadcast media (television, radio, Internet, billboards) and printed media (newspapers, posters, magazines). They play the vital position as the supply of facts for

health-related problems and can have an impact on our way of wondering and they have the advantage of disseminating facts without difficulty to an extensive audience, at special places at the same time. Unfortunately, distinct researchers have recorded noticeably poor results from their research subjects using the media as a source of information (Onyeizu., 2013).

Other sources of facts are from health workers. This consists of a medical practitioner and experts like physicians, Public Health practitioners, community health workers etc. They are believed to be a source of greater correct information. However, access to these specialists has some challenges which include the fact that contact is ordinarily in the clinic and most times primarily based on appointments. Family contributors and friends: patients and survivors of prostate cancer, as well as family members of a prostate cancer affected a person can serve as a source of information through sharing their experiences and histories. This potential however its shortcomings in of victims no longer inclined to share their experiences, ethno-religions factors etc.

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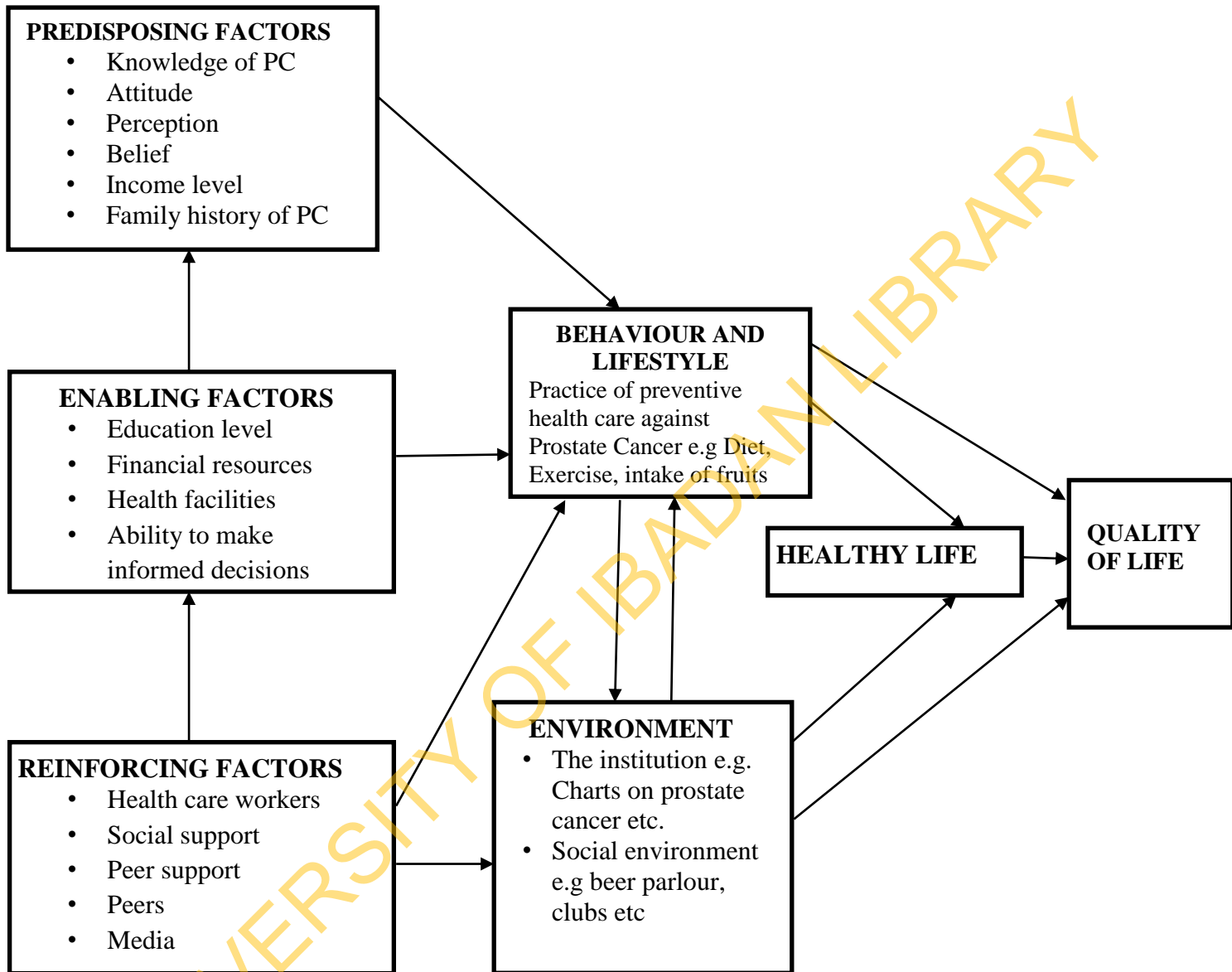
## 2.10 Theoretical Framework of knowledge and preventive healthcare practices against prostate cancer

The precede model was used for this research so as to capture and measure all necessary variables relevant to preventive healthcare practices among the target group. The model was postulated by Green Lawrence (1974). The model is a diagnostic tool which is used to analyse certain health behaviours. Only the PRECEDE aspect of this framework will be employed for the diagnosis of the research problem. The PRECEDE is an acronym that represents Predisposing, Reinforcing, and Enabling Constructs for Educational Diagnosis and Evaluation.

This model considers three main factors influencing health-related behavior. These factors include:

- **Predisposing factors:** These are factors which motivate or provide a reason for a behaviour. They refer to those intrinsic factors that are unique to the research participants and make them liable for practicing preventive healthcare against prostate cancer. Predisposing factors have the potential to influence the decisions people take over their health and their given health behaviour. They do this by encouraging the behaviour or by inhibiting the behaviour from occurring.
- **Enabling factors:** These are factors which enable persons to act on their predispositions. These are antecedent to behaviour. They influence realization of motives, aspirations, and decisions of an individual. They are environmental bound factor which enables action for or against preventive healthcare against prostate cancer. These include skills, level of education, financial resources, time, government support, training programmes etc.
- **Reinforcing factors:** Include factors which come into play after a behaviour has been initiated, they encourage persistence of behaviours by providing continuing rewards or incentives. These comprises of the feedback or influence of the significant order or people that influence the continuance or discontinuance of a particular behaviour. Examples of these factors include peer pressure, siblings, co-students, peer groups, social support, media etc. they are also factors that subsequent to behaviour, provides perpetual rewards or incentives for the behaviour and contributes to its persistence or extraction.

## PRECEDE-PROCEED FRAMEWORK



**Figure 2:1:** Conceptual Framework for knowledge and practice of preventive healthcare against prostate cancer among Master of Public Health male students

## CHAPTER THREE

### METHODOLOGY

#### 3.1 Study design

This was a descriptive cross-sectional survey that investigated knowledge and practices of preventive health care against prostate cancer among Masters of Public Health male students of the University of Ibadan, Ibadan.

#### 3.2 Study area

The study was conducted in the faculty of Public Health, University of Ibadan, Ibadan. The university was established in 1948 as an affiliate of University of London and as such regarded as the oldest tertiary institution in Nigeria. At the moment, the University has academic programs in thirteen Faculties. Out of which Faculty of Public Health was part of them. The university has residential and sports facilities for staff and students on campus. Facilities found on campus include; Olympic-size swimming pool, lawn tennis, and squash courts, 630,000 volume Central Library, bookshop, theatre Arts, conference center, Zoological garden, Botanical garden, Fast food complex, health center which is referred to as Jaja Clinic located at the center of the school around the administrative building. It admits staff and students of the University and provides relevant health services such as minor treatments and referrals to the University College Hospital when necessary. University College Hospital is a federal teaching hospital located at the extension site of the University and it is opened to all students and staff including members of the community. A major arm of College of Medicine comprises the faculties of Basic Medical Sciences, Clinical Sciences, Dentistry, and Public Health. The faculty of Public Health where the study took place was founded in 2002 as the first Faculty in Nigeria. The Department of Preventive and Social Medicine of the then faculty of Clinical sciences metamorphosed into Faculty of Public Health. The Faculty currently has Six Departments and one institute which include Epidemiology and Medical Statistics (EMS), Health Promotion and Education (HPE), Health Policy and Management (HPM), Environmental Health Sciences (EHS), Human Nutrition and Community Medicine. Being the foremost and leading Faculty of Public Health in Nigeria, carrying this study out at this location will ensure that the results and recommendations from the study can be adopted by other schools of Public Health in the country.

### 3.3 Study population

The study population consisted of Master of Public Health male students, University of Ibadan, Ibadan. The University of Ibadan has an annual average postgraduate students' population of 15,000, an annual doctoral graduation figure of roughly 250 people and as at the time of this study, there were estimated one hundred and seventy-nine masters of Public Health students. Master of Public Health male students University of Ibadan students represent a subset of Nigeria population who are regarded as change agents in their various communities and they are classified as elites that adopt new healthy knowledge and information. The new healthy knowledge and information are expected to preserve, promote, and improve the health and well-being of populations, communities, and individuals. Conducting this study among this population will, therefore, serve to inform the necessary stakeholders on how to better equip the males on preventive health care practices against prostate cancer.

### 3.4 Inclusion criteria

The study participants were male masters students of Public Health, University of Ibadan. Also, male students willing to provide verbal and written informed consent to participate in the study were enrolled.

### 3.5 Exclusion criteria

Male students who refused to provide both verbal and written informed consent were not enrolled in the study.

### 3.6 Sample size

The sample size was calculated using Yamane (1967) simplified formula for proportion at 95% confidence level and P at 0.05.

$$n = \frac{N}{1+N(e)^2}$$

Where **n** is the sample size, **N** is the proportion size, and **e** is the level of precision.

$$n = \frac{179}{1+179(0.05)^2}$$

$$1+179(0.05)^2$$

$$n = \frac{179}{1+179(0.05)^2}$$

1.4475

$n = 123.7$

Adjusting the sample size for 10% non-response

$nf = \frac{n}{1-f}$

$1-f$

$nf = \frac{179}{1-10\%}$

$1-10\%$

$nf = \frac{179}{0.9}$

$0.9$

$nf = 137$

Therefore, the minimum sample size for this study was **137**.

### **3.7 Sampling technique**

The Faculty of Public Health consists of six departments which are: Health Promotion and Education, Health Policy and Management, Epidemiology and Medical Statistics, Environmental Health Sciences, Community Medicine and Human Nutrition. A proportionate sampling method was used to get actual number of students to be enrolled from the total number of Male students in the Faculty.

The total number of male students in all the departments of the faculty as gathered through the various class representatives and departmental offices is presented in table 3.1



**Table 3.1: Number of Master of Public Health male students in the Faculty of Public Health**

S/N	Department	2016/2017	2017/2018	Total
1.	Health Promotion and Education	09	12	21
2.	Health Policy and Management	14	15	29
3.	Epidemiology and Medical statistics	20	15	35
4.	Environmental Health Sciences	10	14	24
5.	Community Medicine (RFH)	11	13	24
6.	Human Nutrition	26	20	46
	<b>TOTAL</b>	<b>90</b>	<b>89</b>	<b>179</b>

**Source:** Departmental offices record

### 3.8 Instrument for data collection

A quantitative method was used for data collection with the use of self-administered semi-structured questionnaire. The questionnaire was developed based on existing questionnaires and using information obtained from literature on prostate cancer knowledge, preventive health care practices, factors influencing preventive health care practices and sources of information on prostate cancer. The Questionnaire contained five (5) sections to elicit information from respondents.

**Section A:** Socio-demographic information

**Section B:** Knowledge of prostate cancer

**Section C:** Preventive Health Care Practices against Prostate Cancer

**Section D:** Factors influencing preventive healthcare against Prostate Cancer

**Section E:** Sources of information available to respondents on Prostate Cancer

### 3.9 Validity of the instrument

The validity of the instrument for data collection was ensured by reviewing literature using themes from the study objectives and also based on the variables from the conceptual framework that are based on the relevant variables. The project supervisor was consulted on

how the instrument should be designed and subsequently his comments were used to improve the tool. The draft of the proposed instrument was also subjected to independent, peer and expert reviews, particularly experts in Public Health Promotion and Education.

### **3.10 Reliability of the instrument**

To determine the internal consistency of the questionnaire, Pilot testing was conducted using 10% of respondents among MPH students of Obafemi Awolowo University, Ile-Ife, Osun State. Data collected were analysed. A reliability coefficient (Cronbach's Alpha) of 0.75 on SPSS was considered acceptable reliability.

### **3.11 Data collection procedure**

For this study, self-administered questionnaire was used. The data were collected by the researcher with the use of three (3) research assistants who were trained prior to the time of data collection.

Both the benefits and the possible harms that may arise as a result of participating in the study was explained. The informed consent forms were given after adequate information has been provided. Thereafter, the researcher checked for errors or incomplete questions before leaving the field.

### **3.12 Data management and analysis**

Serial numbers were written on the copies of questionnaire for easy entry and recall. The data collected were sorted, cleaned and coded with the use of a coding guide. Thereafter, the data collected were carefully entered into statistical software and analysed using descriptive statistics such as means and standard deviations to summarize quantitative variables while Chi-square test analysis was used to assess the association between selected variables. The results obtained from the statistical tool was summarized and represented in frequency tables and charts.

Respondents' knowledge of preventive health care against prostate cancer was measured on a 25-point knowledge scale. Knowledge Score (KS) of  $\leq 10$  was rated as poor knowledge, KS of  $>10 \leq 19$  was considered as fair knowledge and KS  $>19$  was rated as good knowledge.

A 24-point scale was used for practices of preventive health care against prostate cancer, where a score of  $\leq 17 (<75\%)$  was represented as poor practices and a score  $>17 (\geq 75\%)$  considered as good practices of preventive health care against prostate cancer.

To identify the factors that influence preventive healthcare against prostate cancer, a ten (10) statement list was used and reported in percentage.

To identify the major sources of information on preventive healthcare against prostate cancer, a six (6) statement list was used and reported in percentage to identify the major sources of information available to respondents.

Chi-square test statistic was conducted to investigate the relationship between knowledge and practice of preventive healthcare against prostate cancer. It was also used to investigate the relationship between age, level of income and practice of preventive healthcare.

### **3.13 Ethical approval**

Ethical approval was sought and obtained from UI/UCH ethical review board before going to the field for data collection. Also, written informed consent was attached to the questionnaire. Anonymity and confidentiality were maintained, as respondents were told not to write their names on the questionnaire.

**Confidentiality of Data:** Confidentiality and anonymity were guarded. The information was collected through a questionnaire which does not require disclosure of the participants' name.

**Beneficence to Participants:** The study identified various options for the prevention of prostate cancer which will guide the health seeking behaviour of vulnerable male masters MPH students against prostate cancer.

**Non-Maleficence:** The study did pose harm or injury to respondents since it did not require invasive procedures. Their time for participation was only taken.

**Voluntariness:** Participants were free to withdraw at any time.

### **3.14 Study Limitation**

Students in the year two (MPH II) in the Faculty of Public Health were scattered and were not easy to get after completion of their course work. A snowballing approach was used during the study by keeping tabs on the class representatives and/or other available class members through whom others were reached.

## CHAPTER FOUR

### RESULTS

#### 4.1 Socio-demographic characteristics of the respondents

A total of 166 Master of Public Health male students of University of Ibadan participated in the study. The mean age of the respondents was  $28.5 \pm 6.2$  years with a minimum and maximum age of 22.0 and 53.0 years respectively. Majority, 131(78.9%) of the respondents were of the Christian faith, few, 26(15.7%) were of the Islamic faith while 3(1.8%) of the respondents were traditionalist and 6(3.6%) chose other religion. Except for the few, 41(24.7%) who reported to be married, most, 125(75.3) of the respondents were single. Of all the respondents, 90(54.2%) were MPH I while 76(46.8%) were MPH II. In total, 29(17.5%) of the respondents were from the Department of Health Promotion and Education, 22(13.3%) from Community medicine, 31(18.7%) from Environmental Health Sciences, 27(16.3%) from Human Nutrition, 29(17.5%) from Epidemiology and Medical Statistics, 18(10.8) from Health Policy and Management, and 10(6.0%) from the Institute of Child Health. Most, 110(66.3%) of the respondents were of the Yoruba ethnic group but 11(6.6%) were Hausa, 36(21.7%) Igbo, and 9(5.4%) other ethnic groups such as Edo, Ibibio, Igala, Urhobo Esan, Fulani, Tiv and Epira were also represented. The mean monthly income of respondents was ₦41, 500 with a minimum and maximum income less than ₦20, 000 and above ₦80, 000 respectively. Of all the respondents, 19(11.4%) of the respondents' relatives have had prostate cancer while 146(88.6%) relatives did not. Some, 58(34.9%) of the respondents had received information from healthcare giver about prostate cancer while 108(65.1%) respondents have not received information from healthcare giver about prostate cancer.

**Table 4.1: Socio-demographic profile of respondents**

Variables	Responses	N=166	
		Freq.	%
Age (In years)	20-29	126	75.9
	30-39	27	16.3
	40-49	9	5.4
	50 and above	4	2.4
Religion	Christianity	131	78.9
	Islam	26	15.7
	Traditional	3	1.8
	Others	6	3.6
Marital status	Single	125	75.3
	Married	41	24.7

<b>Level of study</b>	MPH I	90	54.2
	MPH II	76	46.8
<b>Departments</b>	HPE	29	17.5
	RFH	22	13.3
	EHS	31	18.7
	NUT	27	16.3
	EMS	29	17.5
	HPM	18	10.8
	ICH	10	6.0
<b>Ethnic group</b>	Yoruba	110	66.3
	Hausa	11	6.6
	Igbo	36	21.7
	Others	9	5.4
<b>Income level (#)</b>	Below 20,000	40	24.1
	21,000-50,000	50	30.1
	51,000-80,000	37	22.3
	Above 80,000	39	23.5
<b>Relative ever had prostate cancer</b>	Yes	19	11.4
	No	146	88.6
<b>Ever received information from your healthcare giver about prostate cancer</b>	Yes	58	34.9
	No	108	65.1

#### 4.2 Respondents' knowledge of prostate cancer

Table 4.2 presents information on the knowledge of prostate cancer among the respondents. In total, 25(15.1%) of the respondents' had good knowledge scores, 76(45.8%) had fair knowledge score, while 65(39.2%) had poor knowledge score.

However, the mean Knowledge Score (KS) was  $12.7 \pm 5.8$  with minimum and maximum score of 0 and 25.0, respectively.

#### Respondents' definition of prostate cancer

On the definition of the term prostate cancer, majority, 89(53.6%) of the respondents defined prostate cancer as abnormal malignant growth of cells in the prostate gland, 26(15.7%) defined it as abnormal cell growth in the prostate gland, 22(13.3%) defined it as cancer of the male organ and 29(17.5%) had no idea of what is prostate cancer.

### **Knowledge of the risk factors of Prostate cancer**

Respondents' risk factors reported were: Age 127(76.5%), Ethnicity 128(77.1%), Family history 116(69.9%), Sexually transmitted infections (STIs) 94(56.6%) and Alcohol consumption 74(44.6%).

### **Symptoms of Prostate Cancer**

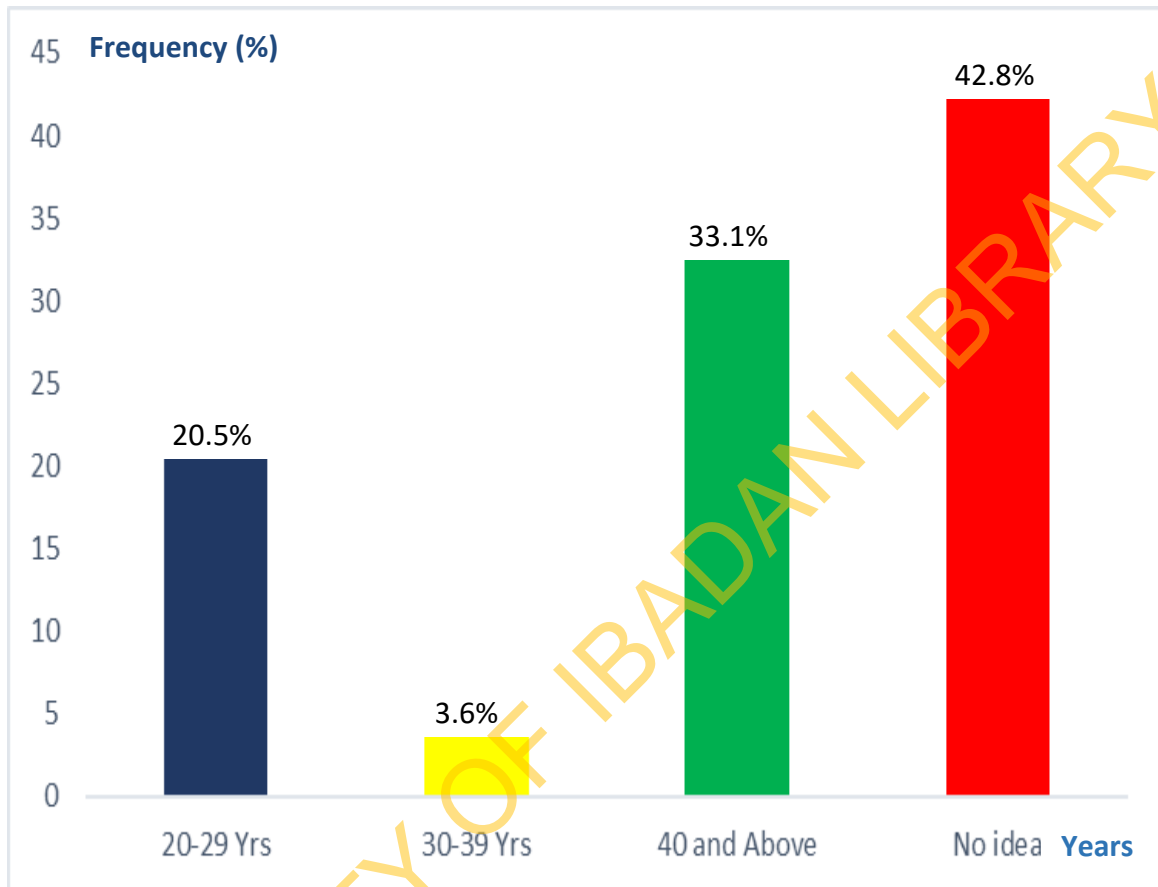
On the symptoms of prostate cancer, about 111(66.9%) of the responses were 'weak or interrupted urine flow', 93(56.0%) 'inability to urinate'. Other responses of symptoms of prostate cancer include; 83(50%) frequent urine especially at night, 69(41.6%) blood in the urine, and 65(39.2%) burning with urination.

### **Preventive health care practices against prostate cancer**

Nearly, 103(62.0%) of the respondents reported that taking diet low in fat can prevent prostate cancer. About 88(53.0%) of the respondents reported that cessation of smoking of tobacco or cigarette could prevent prostate cancer, 66(39.8%) reported cessation of alcoholic drinks for prevention of prostate cancer, 55(33.1%) reported regular physical activity and 39(23.5%) gave routine medical check-up for the prevention of prostate cancer.

### **Age range when men are more at risk of developing prostate cancer**

From the observed responses, 34(20.5%) reported 20-29 years of age range, 6(3.6%) reported 30-39 years of age range, 55(33.1%) reported 40 years and above as the age range while 71(42.8%) had no idea of the age range. Invariably, only 33.1% of the respondents got the right answer while 66.9% got it wrong.



**Figure 4.2: Perceived age range when men are more at risk of developing prostate cancer**

**Table 4.2: Knowledge of respondents on prostate cancer**

**N=166**

<b>Variables</b>	<b>Responses</b>	<b>%</b>
<b>*Definition of the term prostate cancer</b>	Abnormal malignant growth of cells in the prostate	53.6
	Abnormal cell growth in the prostate	15.7
	Cancer of the male organ	13.3
	No idea	17.4
<b>*Risk factors of prostate Cancer</b>	Ethnicity	77.1
	Age	76.5
	Family History	69.9
	Sexually Transmitted Infections	56.6
	Alcohol consumption	44.6
<b>*Symptoms of prostate Cancer</b>	Weak or interrupted urine flow	66.9
	Inability to urinate	56.0
	Frequent urination especially at night	50.0
	Blood in urine	41.6
	Burning sensation with urination	39.2
<b>*Preventive health care practices against prostate Cancer</b>	Diet low in fat	62.0
	Cessation of smoking	53.0
	Cessation of alcoholic drinks	39.8
	Regular physical activity	33.1
	Routine medical checkup	23.5
<b>Age when men are more at risk of prostate cancer</b>	20-29	20.5
	30-39	3.6
	40 and above	33.1
	No idea	42.8

\*Multiple responses



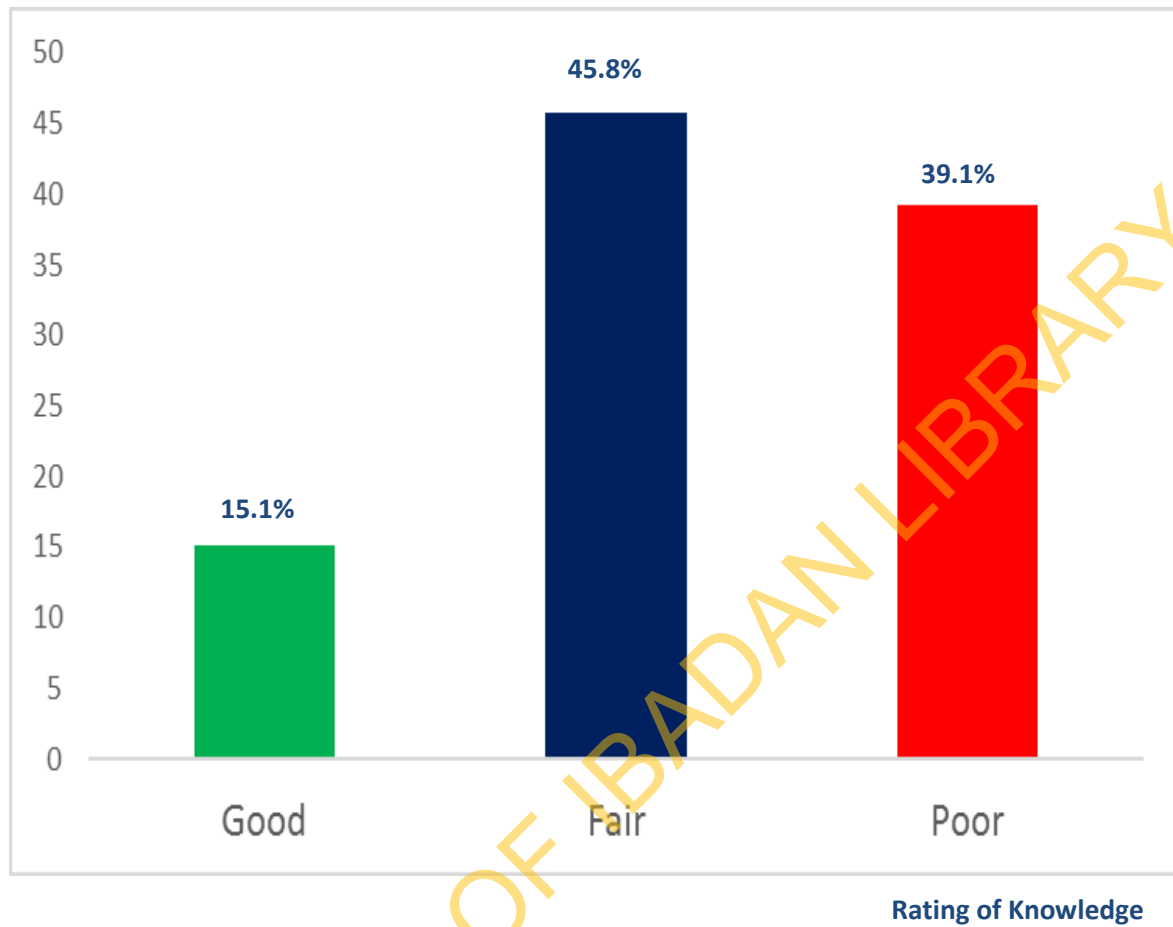
**Table 4.3: Total knowledge score**

Knowledge Score (KS)	N=166	
	Freq.	%
Good (KS>19)	25	15.1
Fair (KS>10≤19)	76	45.8
Poor (KS≤10)	65	39.1

Mean knowledge score=12.75±5.8; Maximum score=25, Minimum score=0

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Frequency (%)



**Figure 4.3: Respondents' General knowledge of Prostate cancer**

### **4.3 Preventive healthcare practices against prostate cancer among Master of Public Health male students.**

Practices against prostate cancer among Master of Public Health male students is shown in Table 4.4

A total of 78(47.0%) of the respondents practiced a routine medical check-up, 99(59.6%) participated regularly in physical activity, 114(68.7%) took fruits and vegetable regularly, 103(66.2%)of the respondents consumed whole grains and cereals. About 127(76.5%) of the respondents maintained a healthful weight, 29(17.5%) of the respondents took alcoholic drinks regularly to complement their meal, 44(26.5%)enjoyed eating food that is high in fat. 66(39.8%) of the respondents consumed milk, cheese, yoghurtand other dairy products daily. While 102(61.4%) took food that is highly rich in vitamin D daily and 26(15.7%) Smoke tobacco/cigarette regularly. About 9(5.4%) enjoys sex with multiple sexual partners and 11(6.6%) engaged in unprotected sexual intercourse.

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**Table 4.4: Preventive healthcare practices on prostate cancer**

<b>Statements</b>	<b>N=166</b>	
	<b>Yes (%)</b>	<b>Freq.(%)</b>
I practice a routine medical check up	78(47.0)	88(53.0)
I participate regularly in physical activity	99(59.6)	66(39.8)
I take fruits and vegetable regularly	114(68.7)	52(31.3)
I consume whole grains and cereals	103(66.2)	62(37.3)
I maintain a healthful weight	127(76.5)	39(23.5)
I take alcoholic drinks regularly	29(17.5)	137(82.5)
I enjoy eating food that is high in fat	44(26.5)	122(73.5)
Milk, cheese, yoghurt and other dairy products are what I consume daily	66(39.8)	100(60.2)
I take food that is high rich in vitamin D daily	102(61.4)	64(38.6)
Smoking of tobacco/cigarette is what I do regularly	26(15.7)	140(84.3)
Sex with multiple sexual partners is what I enjoy doing	9(5.4)	157(94.6)
I engage in unprotected sexual intercourse	11(6.6)	155(93.4)

**Multiple responses****Total practice score**

About 107(64.5%) of the respondents scored low on a 24-point practice scale while 59(35.5%) had good practice score on preventive healthcare (see table below). The mean practice score was  $16.8 \pm 3.9$  while the lowest and higher practice score were 10.0 and 24.0 respectively. See table below.

**Table 4.3.1: Total Practice score**

<b>Practice Score (PS)</b>	<b>No.</b>	<b>%</b>
Good (PS>17)	59	35.5
Poor (PS≤17)	107	64.5
Total	166	100.0

Mean Practice score=16.8±3.9; Minimum score=10.0, Maximum score=24.0

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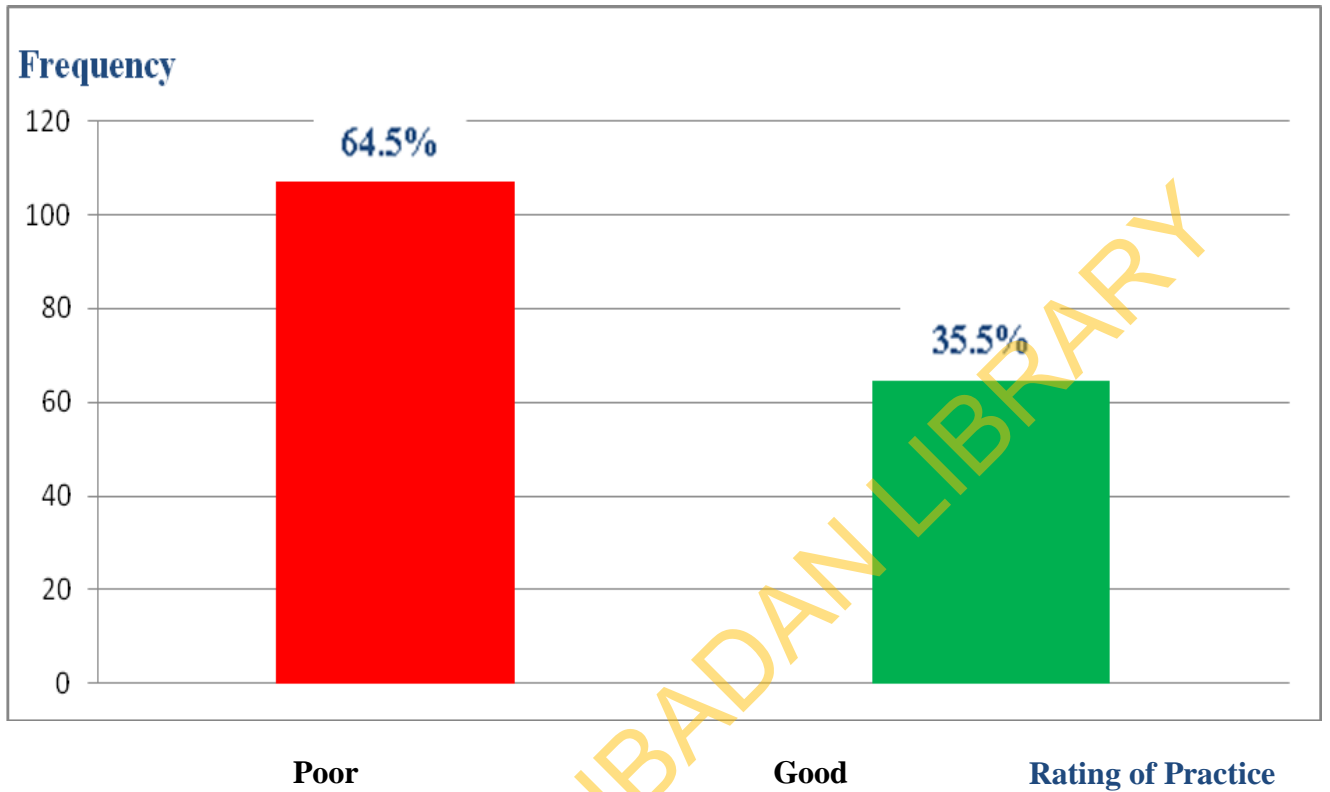


Figure 4.4: Respondents' Practices against Prostate Cancer

#### **4.4 Factors influencing preventive healthcare practices against prostate cancer among the respondents**

Factors responsible for preventive healthcare practices against prostate cancer as declared by the respondents are presented in Table 4.5. A total of 126(75.9%) of the respondents reported level of education as their major influence on preventive healthcare practices. About 79(47.6%) of the respondents' influence was because of the health workers' negative attitudes. Majority, 113(68.1%) were influenced by financial constraints. A total of 95(57.2%) of the respondents were influenced by proximity of their health facilities. More than fifty percent, 85(51.2%) of the respondents were influenced by family history of prostate cancer. Although 110(66.3%) of the respondents were influenced by advice from medical practitioner, 99(59.6%) were influenced by the reason of government support programs. Also, 84(50.6%) of the respondents reported support from friends as a factor influencing preventive health care practices, 103(62.0%) reported that it is because of health awareness campaign on prostate cancer and 69(41.6%) choice was based on academic stress.

Factors that were in favour of preventive healthcare practices were level of education, financial constraints, advice from medical practitioner, Health awareness on Prostate cancer, Government support programmes, Proximity of health facilities, family history and support from friends. While factors that were not in favour of preventive healthcare practices were academic stress and Health workers attitudes.

**Table 4.5: Factors influencing the preventive healthcare practices on prostate cancer**

<b>*Factors</b>	<b>No.</b>	<b>N=166</b> <b>%</b>
Academic stress	69	41.6
Health workers negative attitudes	79	47.6
Support from friends	84	50.6
Family history	85	51.2
Proximity to the health facilities	95	57.2
Government support programmes	99	59.6
Health awareness on Prostate cancer	103	62.0
Advice from Medical Practitioners	110	66.3
Financial Constraints	113	68.1
Level of Education	126	75.9

**\*Multiple responses**

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#### **4.5: Sources of information available to respondents on prostate cancer**

The respondents' sources of information are presented in Table 4.5.

##### **Where information on prostate cancer was first heard**

More than half 54(32.5%) of the respondents reported that Health awareness programmes were the source of information on prostate cancer where it was first heard. Although, 47(27.7%) of the respondents reported programmes on Television, Radio, and Internet as where information on prostate cancer was first heard. Respondents also reported Schools 45(27.1%), Hospitals 8(4.8%), and 13(7.8%) as others.

##### **Usefulness of the information**

About, 59(35.5%) reported that the information received was very useful, 68(41.0%) of the respondents reported that it was useful while 39(23.5%) of the respondents reported that the information received as not useful.

##### **Sources of information available to respondents on prostate cancer**

On the sources of information available to respondents on prostate cancer, about 65(39.2%) of the respondents reported Health programmes, 52(31.3%) of the respondents reported Television, Radio and internet, 23(13.9%) chose Brochures, Fliers and Journals, 10(6.0%) reported information from family and friends, 8(4.8%) reported Health workers counseling service, 5(3.0%) reported School curriculum or Course work, 2(1.2%) reported religious group while 1(0.6%) of the respondents reported others as sources of information available to them.

##### **The most preferred source of information**

For the most preferred source of information of respondents, majority 73(44.0%) reported Television, Radio, and Internet as most preferred source of information. 38(22.9%) reported Health Seminars, 18(10.8%) reported Brochures, Fliers and Journals, 12(7.2%) reported School curriculum or Course work, 9(5.4%) reported information from family and friends, 8(4.8%) reported Health workers counseling service, 1(0.6%) reported as others while 7(4.2%) did not specify.

**The reason they prefer the above-mentioned sources of information on prostate cancer**

Reasons for the preferred sources of information include; 58(34.9%) they usually invite experts to give detail information, it is educative 51(30.7%), easy to access 23(13.9%), a large group can be reached 22(13.3%) and not specified 12(7.2%).

**Most effective sources of information**

The most effective source as reported include; 67(40.4%)Television, Radio and Internet, health seminars 49(29.5%), Brochures, Fliers and Journals 14(9.4%) and information from family and friends 12(7.2%), Health workers counselling service 10(6.0%), School curriculum or course work 4(2.4%), Commercial Billboards 2(1.8%), and 8(4.8%) Not specified.

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**Table 4.6: Sources of information available to respondents on prostate cancer**

<b>Statement</b>	<b>Responses</b>	<b>N=166</b>		
		<b>No.</b>	<b>%</b>	
<b>Where information on prostate cancer was first heard</b>	Health programs	54	32.5	
	TV, Radio and internet	46	27.7	
	School	45	27.1	
	Hospital	8	4.8	
	Others	13	7.8	
<b>Usefulness of the information</b>	Very useful	59	35.5	
	Useful	68	41.0	
	Not useful	39	23.5	
<b>Sources of information available to respondents on prostate cancer</b>	Health programme	65	39.2	
	TV, Radio, and internet	52	31.3	
	Brochures, Fliers and Journals	23	13.9	
	Information from family and friends	10	6.0	
	Health workers counseling service	8	4.8	
	School curriculum/Course work	5	3.0	
	Religious group	2	1.2	
	Others	1	0.6	
<b>Most preferred source of information</b>	TV, Radio and internet	73	44.0	
	Health Seminars	38	22.9	
	Brochures, Fliers and Journals	18	10.8	
	School curriculum/Course work	12	7.2	
	Information from family and friends	9	5.4	
	Health workers counseling service	8	4.8	
	Others	1	0.6	
<b>The reason they prefer the above mentioned sources of information</b>	They usually invite experts to give detail information	58	34.9	

**on Prostate Cancer**

on prostate cancer

It is educative	51	30.7
Easy to access	23	13.9
Large group can be reached	22	13.3
Not specified	12	7.2

---

**Most effective sources of information**

Television, Radio and internet	67	40.4
Health Seminars	49	29.5
Brochures, Fliers and Journals	14	9.4
Information from family and friends	12	7.2
Health workers counselling service	10	6.0
School curriculum or course work	4	2.4
Commercial Billboards	2	1.2
Not specified	8	4.8

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**\*Multiple responses**

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#### 4.6 Statistical Test of Hypotheses

**Ho1: There is no significant difference between knowledge of prostate cancer and preventive health care practices against prostate cancer.**

The table 4.6.1 presents the results of the relationship between respondent's knowledge and practices against prostate cancer. Chi-square analysis was used to test for the association between these two variables and this revealed that there was a statistically significant difference ( $p= 0.654$ ;  $df= 2$ ;  $X^2=0.848$ ) between them. Thus, the null hypothesis was rejected and there is no statistically significant difference between respondents' knowledge and preventive healthcare practices against prostate cancer.

Knowledge	preventive health care practices		Total	X <sup>2</sup>	df	p-value+
	Poor	Good				
Poor	42(64.6%)	23(35.4%)	65(100%)	0.848*	2	0.654
Fair	47(61.8%)	29(38.2%)	76(100%)			
Good	18(72.0%)	7(28.0%)	25(100%)			
Total	107(64.5%)	59(35.5%)	166(100%)			

+Not Significant ( $p>0.05$ )

**Ho2: There is no significant difference between respondents' age and preventive health care practices against prostate cancer.**

The table 4.6.2 presents the results of the relationship between the respondent's age and preventive health care practices against prostate cancer. Chi-square analysis was used to test for the association between these two variables and this revealed that there was a statistically significant difference ( $p= 0.288$ ;  $df= 3$ ;  $X^2=3.769$ ) between them. Thus, the null hypothesis was rejected and there is no statistically significant difference between respondents' age and preventive health care practices against prostate cancer.

Age of Respondents (Yrs)	Preventive health care practices		Total	X <sup>2</sup>	df	p-value+
	Poor	Good				
20-29	77(61.1%)	49(38.9%)	126(100%)	3.769*	3	0.288
30-39	21(77.8%)	6(22.2%)	27(100%)			
40-49	7(77.8%)	2(22.2%)	9(100%)			
50 and Above	2(50%)	2(3.4)	9(100)			
Total	107(64.5%)	59(35.5%)	166(100%)			

+Not Significant ( $p<0.05$ )

**Ho3: There is no significant difference between respondents' level of study and preventive health care practices against prostate cancer.**

The table 4.6.2 presents the results of the relationship between the respondent's level of study and preventive health care practices against prostate cancer. Chi-square analysis was used to test for the association between these two variables and this revealed that there was a statistically significant difference ( $p= 0.00$ ;  $df= 1$ ;  $X^2=0.997$ ) between them. Thus, the null hypothesis was accepted and there is a statistically significant difference between respondents' level of study and preventive health care practices against prostate cancer.

Level of Study	Preventive health care practices		Total	X <sup>2</sup>	df	p-value+
	Poor	Good				
MPH I	58(35.5%)	32(18.7%)	90(54.2%)	0.997*	1	0.000
MPH 2	49(29%)	27(16.8%)	76(46.8%)			
Total	107(64.5%)	59(35.5%)	166(100%)			

Significant ( $p<0.05$ )

## CHAPTER FIVE

### DISCUSSION, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Discussion

##### 5.1.1 Socio-demographic profile of Master of Public Health male students of University of Ibadan

The information gathered had appeared Master of Public Health male students of University of Ibadan were within the age scope of 20-52 years with the dominant part of them being single.

A major part of the respondents are of the Yoruba ethnicity and obviously in light of the way that the College of Ibadan where the study was coordinated, is the capital city of Oyo-state in South-western of Nigeria where Yoruba is the genuine ethnic social affair. Most of the respondents were Christians. The greater parts of the respondents had never received information from their healthcare giver about prostate cancer. Likewise, the dominant part of the respondents did not drink alcohol and almost every one of the respondents didn't smoke cigarette. Also, the majority of the respondents did not consume alcohol and nearly all the respondents did not smoke cigarette. Most of the respondents maintained a healthy weight as their training in Public Health suggests that they are probably informed and knowledgeable than most people in the general population as far as preventive healthcare practices were concerned but the findings from this study revealed that they had a fair knowledge of preventive healthcare against prostate cancer and they did not practice them. This means that the fair knowledge and information they had on prostate cancer did not translate into preventive healthcare practices. Note that religion, marital status and ethnicity were not even equitably distributed in this study population because good majority of the respondents was Christians, Singles and Yoruba.

##### 5.1.2 Knowledge of Prostate Cancer

The findings revealed respondents' level of knowledge on prostate cancer. A large portion of the respondents' had fair knowledge scores. Several studies have reported low knowledge among students with health-related disciplines (Akinremi, et al, 2011; Ojewola *et al.*, 2012). This study also revealed that Master of Public Health male students had fair knowledge on preventive healthcare against prostate cancer. This calls for more training and improvement in the curriculum that is required to increase knowledge of male students about this



predominant health issue in order to reduce the health burden due to the disproportionately high morbidity and mortality from the disease (Olapade-Olaopa *et al.*, 2008).

The vast majority of the respondents characterized prostate disease as abnormal malignant growth of cells in the prostate, which is the generally acceptable definition of prostate cancer by the American Cancer Society (2016). In responding to the risk factors of prostate cancer, some respondents reported Ethnicity, Age, Family history, sexually transmitted infections and alcohol consumption as stated by Noor *et al.*, (2016). The fair knowledge of preventive healthcare by Master of Public Health male students on prostate cancer suggests that the teaching they receive in class with a view in obtaining a Master degree in Public Health actually had a lesser impact on their knowledge about prostate cancer.

### **5.1.3 Preventive health care practices against Prostate Cancer**

Although different investigations have been directed among the all-inclusive community, female populace and the immature however only a couple have been explicitly focused on men particularly those in the Public Health field. This investigation uncovered that dominant part of the respondents did not have great practices towards preventive health care against prostate cancer. This is troubling in the light of the fact that, the Master of Public Health male students who are potential fathers and Public Health experts are meant to be change agents in the area of preventive health care against prostate cancer because their poor practice will make them more vulnerable especially those with a family history of prostate cancer. The reason for this poor preventive healthcare practices may be because a majority of the study population are young men with little or no perceived vulnerability to prostate cancer. Similar evidence has shown that older men have higher knowledge which leads to good preventive healthcare practice against prostate cancer than youthful men, due to the fact that older men experience a higher frequency of urinary signs due to benign prostatic hyperplasia or prostate cancer, resulting in more visits to the physician where prostate cancer is discussed (Nakandi *et al.*, 2013).

The poor preventive health care practices among the respondents can likewise be clarified by the adjustment in human way of life everywhere throughout the world, particularly as of late, the ways of life have quickly been industrialised. According to Ejike and Ezeanyiwa, (2009), stated that lifestyle changes among Nigerian men such as eating of westernised diets may lead to increased incidence of chronic diseases like cancer. And only a few men have their quality of life improved in a later year of their lives. Despite the fact that the study population

for this study are individuals with high education, they still did not have good practice towards preventive healthcare against prostate cancer. These findings demonstrate that education level or being a Public Health professional may not really be adequate to prevent prostate cancer.

#### **5.1.4 Factors influencing preventive healthcare practices against Prostate Cancer**

The factors identified to influence the preventive healthcare practices were; level of education, health workers' attitude, financial constraints, proximity to the health facilities, family history, advice from the medical practitioner, government support programmes, support from friends, health awareness and academic stress. The level of education was huge in this investigation as revealed that Nigerian proficiency level is 61%, and in agreement to research conducted in the Southern part of the country where literacy degree is greater than the Northern part indicate that there is a significant relationship between educational level and knowledge of cancer (Sani, Florence, Naab, Lydia 2016). Educated men and women face appreciably lower dangers for any cancer.

The respondents additionally revealed financial constraints as one of the central point affecting preventive health care practices against prostate cancer. This is as a result of the economic situation of the country.

Additionally, a few respondents picked family history of prostate cancer as the main consideration affecting their preventive health care practices against prostate disease. This is in line with Sierra (2016) who stated that a family history of prostate cancer has constantly been related with an accelerated danger of prostate cancer that varies according to the degree of the relationship, the variety of relatives affected, and the age at diagnosis.

#### **5.1.5 Sources of information on Prostate Cancer**

A higher level of the respondents picked TV, Radio, and Internet as their most preferred and most effective sources of information on prostate cancer. This is in accordance with Doerte Peters (2018), who expressed that media TV, radio, print media, and internet play a significant role in spreading information and raising awareness on any particular health issues. Also, the demand for information about health has grown exponentially in the last few years. The media is an important ally in any Public Health situation as started by Naveena (2015). The mass media, in the form of the radio and television, are an effective way to

persuade target audiences to adopt new behaviours, or remind them of critical information. On the reason why they preferred this media, a good percentage of them chose large group can be reached which is in line with Naveena (2015) that postulated that Television is an effective audio-visual medium as it reaches a large number of population. And it is an essential communication force to convey the messages of health care services through advertisements and other health programmes.

### **5.1.6 Implications of Findings for Health Promotion and Education**

The discoveries of this investigation have a few ramifications for arranging, improvement and implementation for health promotion and education on preventive health care practices among men. It has been deduced from this study that knowledge and education exposure have a direct influence on the preventive health care of men. Therefore, to improve and encourage the male population on preventive health care practices against prostate cancer, the following should be put in place:

#### **Health Education**

Health education is therefore required to increase the awareness, knowledge and preventive healthcare practices of the men about this predominant health issue to reduce the health burden due to the disproportionately high morbidity and mortality from the disease of the gland. Lower mortality is reported in developed countries due to early detection, while in developing countries, most cancers victims are diagnosed with late stage, incurable tumors, pointing to the need for education schemes and better detection programs.

In any other instance, carrying out rigorous educational programmes with the aim of changing people's health belief helps in prostate cancer prevention. This can be completed via distinctive methods; team education and multimedia training. Multimedia education or computer-based coaching present a new educational technique that can be performed by using communicating the concepts and instructional substances in an easier, extra wide and appealing along with text, sound, picture and video and has a unique potential.

#### **Public Enlightenment**

This can be informed of the campaign which could be used to create awareness and influence knowledge, behaviour towards preventive practices. This has the potential of reaching out to larger number of people including women and the entire population group in the society. This enlightenment programme could involve the use of posters, leaflets, documentaries, jingles

and billboard (Whitaker, Baker and Arias, 2007) for behavioural change communication. However, efforts must also be made to combine it with other strategies such as peer education, advocacy, and policy intervention to effectively address poor preventive healthcare practices against prostate cancer among men. Use of one or more of these information media could be very helpful as the weaknesses of one could be counter-balanced by the strengths of others.

### **Inter-sectorial approach**

Addressing the issue of preventive healthcare practices should cross across various sectors not just the health sector but also the education, agriculture, trade and investment sector. There is a need that at all level of education, students are exposed to adequate knowledge of prostate cancer, enabled, motivated and encourage to practicing preventive healthcare.

### **5.2 Conclusion**

The study assesses the knowledge and preventive health care practices against prostate cancer among Master of Public Health male students of University of Ibadan. It can be concluded that the level of knowledge was fair while the practice was poor. Thus, fair knowledge seems to be ineffective to result in good preventive health care practices. The findings suggest that prostate cancer education, knowledge of prevention and the importance of preventive health care practices among male students should be intensified. This study indicates that knowledge and practices of the students on preventive health care practices should be improved and that the existing health and cancer education the students already had is not sufficient to make them practice prevention against prostate cancer. The fair knowledge of preventive health care has been found to be a reality among Master of Public Health male students of University of Ibadan and poor preventive practices have been identified as one of the risk factors of future occurrence of development of prostate cancer

Hence, there is the need to address these poor preventive health care practices because of its health consequence on the individual.

### **5.3 Recommendations**

In view of the findings from this study, the accompanying recommendations are made:

1. Prostate cancer education, knowledge of prevention and the importance of preventive health care practices among male students should be intensified in various seminar presentations that are been organised in the Faculty, using audio-visual materials as

aids to improve Male students' preventive healthcare practices against prostate cancer as this will be translated to the general population thereby reducing the overall morbidity and mortality associated with prostate cancer in Nigeria.

2. Demonstrations with the use of posters in Public places about prostate cancer menace and screening should be encouraged in the Faculty of Public Health.
3. Establishment of more centers for prostate cancer counselling and screening services and possibly, institution of free prostate cancer screening services for Male students aged 40 years and above.
4. Prostate cancer health promotion and education programmes through TV and Radio programmes, electronic and print media, public health outreach programmes targeted at preventive healthcare practices against prostate cancer should be organised among students in the faculty.

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## QUESTIONNAIRE

Dear Respondent,

Good day Sir/Ma, I am a Postgraduate student of the Department of Health Promotion and Education, Faculty of Public Health , College of Medicine, University of Ibadan. The aim of this study is to investigate the **“Knowledge and preventive health care Practices against prostate cancer among Male Masters’ students of Public Health (MPH), University of Ibadan, Nigeria.** This study will yield information that may be used in developing health intervention programmes especially those related to preventive health care practices against Prostate cancer. There are no right or wrong answers to the questions asked or the statements made, what is desired of you is your truthfulness and honesty. Please note that the completion of this questionnaire is entirely voluntary. All information gathered as a result of your participation in this study will be treated with utmost confidentiality and will be used strictly for research purposes only.

Thank you.

I have read and understood the consent form and voluntarily agree/disagree to participate in the study by ticking [] in the appropriate box below:

1. Agree []      2. Disagree []

Signature

Date

-----

### **SECTION A: SOCIO-DEMOGRAPHIC INFORMATION**

**Please tick (√) any of the responses that apply to you in the options provided or complete the blank spaces provided as applicable.**

1. Age (in years) as at last birthday \_\_\_\_\_
2. Religion: 1. Christianity [] 2. Islam [] 3. Traditional [] 4. Others (specify) \_\_\_\_\_
3. Marital Status: 1. Single [] 2. Married [] 3. Divorce [] 4. Widowed [] 5. Separated [] 6. Cohabiting []
4. Level of study: 1. MPH I [] 2. MPH II []
5. Department /Course of study \_\_\_\_\_

6. Ethnic Group: 1. Yoruba [ ] 2. Hausa [ ] 3. Igbo [ ] 4. Others (specify)\_\_\_\_\_
7. Level of income monthly 1. Below #20,000 [ ] 2. #21,000-50,000 [ ] 3. #51,000-#80,000 [ ] 4. Above #80,000.
8. Have you or any of your relatives (father, brothers, etc.) ever had prostate problems? 1. Yes [ ] 2. No [ ]
9. Have you ever received information from your healthcare giver about prostate cancer?  
1. Yes [ ] 2. No [ ]

### **SECTION B: KNOWLEDGE OF PROSTATE CANCER**

**Instruction:** The table below contains a set of questions to assess your knowledge relating to Prostate cancer. Please fill in your responses

S/N	Questions	Options
10	What do you understand by the term Prostate Cancer?	
11	Mention Five (5) risk factors of Prostate cancer	i. ii. iii. iv. v.
12	Mention five (5) symptoms of Prostate cancer	i. ii. iii. iv. v.
13	List five (5) preventive health care practices against prostate cancer	i. ii. iii. iv. v.
14	At what age range are men more at risk of developing cancer of the prostate? For example ( 20-30)	
15	<b>Total score obtained</b>	
16	<b>Code</b>	

### **SECTION C: PREVENTIVE HEALTHCARE PRACTICES AGAINST PROSTATE CANCER**

**Instruction:** The table below contains a set of statements to examine your preventive health care practices against Prostate cancer. Please read and tick (✓) as appropriate

S/N	STATEMENT	YES	NO
17	I practice a routine medical check up		

18	I participate regularly in physical activity		
19	I take fruits and vegetable regularly		
20	I consume whole grains and cereals		
21	I maintain a healthful weight		
22	I take alcoholic drinks regularly		
23	I enjoy eating food that is high in fat		
24	Milk, cheese, yoghurt and other dairy products are what I consume daily		
25	I take food that is highly rich in vitamin D daily		
26	Smoking of tobacco/cigarette is what I do regularly		
27	Sex with multiple sexual partners is what I enjoy doing		
28	I engage in unprotected sexual intercourse		

#### **SECTION D: FACTORS INFLUENCING THE PREVENTIVE HEALTHCARE AGAINST PROSTATE CANCER**

**Instruction:** which of the following options are likely to influence your decision towards the practice of preventive health care against prostate cancer? Please read and tick (✓) as appropriate.

S/N	STATEMENT	YES	NO
29	Level of education		
30	Health workers negative attitudes		
31	Financial constraints		
32	Closeness of the health facilities		
33	Family history		
34	Advice from medical practitioner		
35	Government support programs		
36	Support from friends		
37	Health awareness on Prostate cancer		
38	Academic stress		

#### **SECTION E: SOURCES OF INFORMATION ON PROSTATE CANCER**

What are the sources of information that are available to you on prostate cancer?

**Instruction:** Please read, tick and fill the space

S/N	STATEMENT	
39	Where was the first time you heard about prostate cancer?	
40	How useful was the information?	1. Very useful 2. Useful 3. Not useful
41	What are the sources of information on prostate cancer available to you?	1. Health programs 2. Brochures, Fliers and journals

		3. TV, Radio and internet 4. Health workers counselling service 5. Information from family and friends 6. Religious group 7. IEC Materials 8. School curriculum/Course work 9. Commercial billboards 10. Others.....
42	Which of these sources of information is the most preferred?	
43	The reason why you prefer the above mentioned sources of information on prostate cancer	
44	Which of these sources of information is the most effective?	

### ALLOTTED POINTS

#### SECTION B: KNOWLEDGE OF PROSTATE CANCER

**Instruction:** The table below contains a set of questions to assess your knowledge relating to Prostate cancer. Please fill in your responses

S/N	Questions	Options	Points
10.	What do you understand by the term Prostate Cancer?	<i>It is an abnormal malignant growth of cells which is called a tumour forms in the prostate. OR</i> It is the development of cancer in the prostate, a gland in the male reproductive system	5points
11.	Mention Five (5) risk factors of Prostate cancer	<ul style="list-style-type: none"> <li>-Age</li> <li>- Ethnicity</li> <li>- Family History/Genetics</li> <li>-Sexually transmitted diseases (STDs)</li> <li>-Lifestyle and Environment</li> <li>-Alcohol consumption</li> <li>-Diet</li> </ul>	5points
12.	Mention five (5) symptoms of Prostate cancer	<ul style="list-style-type: none"> <li>-Weak or interrupted urine flow</li> <li>-Inability to urinate</li> <li>-Frequent urine especially at night</li> <li>-Blood urine</li> <li>-Burning with urination</li> </ul>	5points
13.	List five (5) preventive health care practices against p	<ul style="list-style-type: none"> <li>- Diet low in fat</li> <li>-Ceasation of smoking</li> </ul>	5points

	rostate cancer	-Cesation of alcoholic drinks -Regular physical activity -Routine medical check up -Eating diet high in vegetables	
14.	At what age range are men more at risk of developing cancer of the prostate? For example ( 20-30)	45-and above	5points
15.	<b>Total score obtained</b>		<b>25 POINTS</b>
16.	<b>Code</b>	<b>Code 3: Score <math>\leq 10</math> = Poor</b> <b>Code 2: Score <math>&gt; 10 \leq 19</math> =Fair</b> <b>Code 1: Score <math>&gt;19</math> =Good</b>	

### **SECTION C: PREVENTIVE HEALTHCARE PRACTICES AGAINST PROSTATE CANCER**

**Instruction:** The table below contains a set of statements to examine your preventive health care practices against Prostate cancer. Please read and tick (✓) as appropriate

S/N	STATEMENT	YES	NO	POINTS
17	I practice a routine medical check up	YES		2
18	I participate regularly in physical activity	YES		2
19	I take fruits and vegetable regularly	YES		2
20	I consume whole grains and cereals	YES		2
21	I maintain a healthful weight	YES		2
22	I take alcoholic drinks regularly		NO	2
23	I enjoy eating food that is high in fat		NO	2
24	Milk, cheese, yoghurt and other dairy products are what I consume daily		NO	2
25	I take food that is high rich in vitamin D daily		NO	2
26	Smoking of tobacco/cigarrete is what I do regularly		NO	2
27	Sex with multiple sexual partners is what I enjoy doing		NO	2
28	I engage in unprotected sexual intercourse		NO	2
29	<b>Total score obtained</b>			<b>24 Points</b>
30	<b>Code</b> <b>Code 1: Score 0-17 (&lt;75%) = Poor Practice</b> <b>Code 2: Score 18-24(<math>\geq</math>75%)= Good Practice</b>			



**INFORMED CONSENT FORM FOR KNOWLEDGE AND PREVENTIVE  
HEALTHCARE PRACTICES AGAINST PROSTATE CANCER AMONG MALE  
MASTERS STUDENTS OF PUBLIC HEALTH (MPH), UNIVERSITY OF IBADAN,  
OYO STATE**

**IRB Research Approval Number:**

**This approval will elapse on:**

**Title of research:** Knowledge and preventive healthcare practices against prostate cancer among Male Masters Students of Public Health (MPH), University of Ibadan, Ibadan, Oyo State, Nigeria.

**Name of researcher:** This study will be conducted by Amoo Oluwaseun Paul who is a postgraduate student in the Department of Health Promotion and Education, Faculty of Public Health (MPH), College of Medicine University of Ibadan.

**Purpose of research:** The purpose of this study is to investigate the Knowledge and preventive healthcare practices against prostate cancer among Male Masters Students of Public Health (MPH), University of Ibadan, Ibadan, Oyo State, Nigeria.

**Sample size and procedure for data collection:** A total of 137 respondents will be recruited for this study using a stratified method of sampling to select eligible respondents.

**Expected duration of the research and participant(s) involvement:** This process of this study will last for two months. You are to provide answers to the questions contained in the questionnaire. The questionnaire is expected to last about 15 minutes to complete.

**Risk(s):** There are no physical risks in participating in this study.

**Cost to participating of joining the research:** Participation will cost you nothing. It will, however, take a little of your time.

**Benefit:** At the end of the research, findings will be useful in the design of interventions or strategies aimed at preventing prostate cancer.

**Confidentiality:** All information collected in this study will be given coded numbers. Names of participants will not be written on the questions. In addition, your name or any other identifiers will not be used in any publication or report emanating from this study.

**Voluntariness:** Your participation in this research is entirely voluntary.

**Consequences of participants' decision to withdraw from the research and procedure for orderly termination of participation:** You can choose to withdraw from the research at any time without any penalty. Please also note that some of the information that has been obtained about you before you choose to withdraw may have been used in reports and publications.

**Statement of Person Obtaining Informed Consent**

I have fully explained the nature and scope of the research to \_\_\_\_\_ and have provided sufficient information to him/her which is needed by him/her to make informed decision.

**Date** \_\_\_\_\_ **Signature** \_\_\_\_\_

**Name** \_\_\_\_\_

**Statement of Person Giving Consent**

I have read the description of the research and the research has been explained to me in a language I understand or have been translated into a language I understand. I understand that my participation is voluntary. I know enough about the purpose, methods, risk, and benefits of the research study to judge that I want to take part in it. I understand that I may freely stop being part of this study at any time. Finally, I have received a copy of this consent form and additional information sheet to keep for myself.

**Date** \_\_\_\_\_

**Signature** \_\_\_\_\_

**Name** \_\_\_\_\_



**INSTITUTE FOR ADVANCED MEDICAL RESEARCH AND TRAINING (IAMRAT)**  
College of Medicine, University of Ibadan, Ibadan, Nigeria.



Director: **Prof. Catherine O. Falade**, MBBS (Ib), M.Sc., FMCP, FWACP  
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UI/UCH EC Registration Number: NHREC/05/01/2008a

**NOTICE OF FULL APPROVAL AFTER FULL COMMITTEE REVIEW**

**Re: Knowledge and Practices of Preventive Healthcare against Prostate Cancer among Male Masters' Students of Public Health, University of Ibadan, Ibadan, Oyo State, Nigeria.**

UI/UCH Ethics Committee assigned number: UI/EC/18/0300

Name of Principal Investigator: **Oluwaseun P. Amoo**  
Address of Principal Investigator: Department of Health Promotion & Education  
College of Medicine,  
University of Ibadan, Ibadan

Date of receipt of valid application: 18/07/2018

Date of meeting when final determination on ethical approval was made: **20/09/2018**

This is to inform you that the research described in the submitted protocol, the consent forms, and other participant information materials have been reviewed and *given full approval by the UI/UCH Ethics Committee.*

This approval dates from **20/09/2018 to 19/09/2019**. If there is delay in starting the research, please inform the UI/UCH Ethics Committee so that the dates of approval can be adjusted accordingly. Note that no participant accrual or activity related to this research may be conducted outside of these dates. *All informed consent forms used in this study must carry the UI/UCH EC assigned number and duration of UI/UCH EC approval of the study.* It is expected that you submit your annual report as well as an annual request for the project renewal to the UI/UCH EC at least four weeks before the expiration of this approval in order to avoid disruption of your research.

*The National Code for Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the Code including ensuring that all adverse events are reported promptly to the UI/UCH EC. No changes are permitted in the research without prior approval by the UI/UCH EC except in circumstances outlined in the Code. The UI/UCH EC reserves the right to conduct compliance visit to your research site without previous notification.*



**Professor Catherine O. Falade**  
Director, IAMRAT  
Chairperson, UI/UCH Ethics Committee  
E-mail: [uiuhec@gmail.com](mailto:uiuhec@gmail.com)