EFFECTS OF PROSTATE CANCER EDUCATION ON KNOWLEDGE, ATTITUDE AND WILLINGNESS TO UPTAKE PROSTATE CANCER SCREENING AMONG COLLEGE OF EDUCATION MALE STUDENTS IN OYO

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CERTIFICATION

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DEDICATION

I dedicate this thesis to the Lord Almighty God, the beginning and the end, my anchor and my sustenance. To my late Dad, Mr Taye Williams and Mum, Beatrice Bolanle and my late elder sister Abiodun Omowumi.

compassionate lecturer and whose reputation is worth emulating both as a family man and in the field of Health Education all over Nigeria and beyond. He came to my rescue during my suicidal thought through his God's giving intuition, prayed for me and ensure that things were and is still fine with me "DaD" THANK YOU very much sir and may God continue to bless you.

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ABSTRACT

Cancer of the Prostate is one of the many preventable health challenges that threaten men's physical, mental and psychological wellbeing. Reports have shown that many males particularly pre-service teachers who are future change agents are unwilling to go for screening, for the fear of negative outcome and stigmatisation. Previous studies focused largely on prevalence and causes of Cancer of the Prostate with little consideration for intervention using Cancer of the Prostate education. This study, therefore, determined the effects of Cancer of the Prostate Education (CPE) on knowledge, attitude, and willingness to uptake Cancer of the Prostate Screening (CPS) among male College of Education Students in Oyo Nigeria. The moderating effects of religious affiliation and locus of control were also examined.

The Health Belief Model served as the framework, while the pretest-posttest control group quasi- experimental research design using 2x2x2 factorial matrix was adopted. The purposive sampling technique was used to select government owned colleges of education. Simple random sampling technique was used to select two out of the three public colleges (Federal College of Education (Special), Oyo and Emmanuel Alayande college of Education, Oyo). Two hundred male students who consented to participate in the study were purposively selected and randomly assigned to experimental (100) and control groups respectively. The instruments used were Multidimensional Health Locus of Control (MHLC-r=0.74), Knowledge of CPS (KCPS-r=0.78), Attitude Towards CPS (ACPS-r= 0.81) and Uptake of CPS (UCPS-r= 0.77) scales. The treatment lasted 10 weeks. Data were analysed using descriptive statistics and Analysis of covariance at 0.05 level of significance.

Participants' age was 23.60 ± 1.30 years, while 67.0% were Christians. There were significant main effects of treatment on knowledge ($F_{(1;192)}$= 83.52, partial η^2=.30), attitude ($F_{(1;192)}$= 359.12, partial η^2=.65) and uptake of CPS ($F_{(1;192)}$= 139.20, partial η^2=.40). The participants exposed to CPE obtained a higher mean score on knowledge (15.70), attitude (35.03) and uptake of CPS (22.18) than those in the control (knowledge (9.58), attitude (17.41) and uptake of CPS (12.00)) group. There was a significant main effect of health locus of control on uptake of CPS ($F_{(1;192)}$=3.62, partial η^2=.019) but not on knowledge and attitude. Participants with external health locus of control obtained a higher mean score (17.91) on uptake of CPS than their counterparts (16.27) with internal health locus of control. There were no significant main effects of religion affiliation on knowledge, attitude and uptake of CPS. There were no significant interaction effects of treatment and religion affiliation, treatment and health locus of control on knowledge, attitude and uptake of CPS. The three-way interaction effect of treatment, religion affiliation and health locus of control were not significant.

Cancer of the Prostate education improved knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo, with emphasis on external health locus of control. Cancer of the Prostate education should be adopted by stakeholders for improved knowledge, attitude and uptake of Cancer of the Prostate Screening.

Keywords: Cancer of the Prostate education, College of education male students, Prostate cancer screening, Health locus of control

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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Men are faced with health challenges which threaten their physical, mental, psychological wellbeing and one of such health problem is Cancer of the Prostate . Cancer of the Prostate is a form of disease that develops in the prostate, a gland in the male reproductive system and pathological abnormalities that occurs more frequently in the prostate than elsewhere in males system. The development of prostate disease is influenced by many factors such as ethnic and genetic differences; global distribution, excess of androgen, meat and animal fat intake among other factors. The public health burden of cancer is substantial and cannot be overemphasized.

Most Cancers of the Prostate s are slow growing and may cause pain, difficulty in urinating, erectile dysfunction, or death. Other symptoms can potentially develop during later stages of the disease. Cancer of the Prostate is the 2nd most common cancer worldwide for males, and the 5th most common cancer overall, with an estimated 900,000 new cases diagnosed in 2008 (14% of the total in males and 7% of the total overall) and it has been established that a man's lifetime risk of Cancer of the Prostate is one in seven and it is the second leading cause of cancer death in men, exceeded only by lung cancer (Abdalla, Mustafa, Bisharat, Sharaf, Heib and Zaher, 2013 & American Cancer Society, 2015).

Cancer of the Prostate is the number one cancer in both incidences and mortality in Africa, constituting 40,000 (13%) of all male cancer incidences and 28,000 (11.3%) of all male cancer-associated mortalities (Ferlay, Shin, Bray, Forman, Mathers and Parkin, 2011). In East Africa, Cancer of the Prostate ranks third in both incidence and mortality, and leads to an estimated 9,000 (9% of all male cancers) cases and 7,300 (8.5% of all male cancer) deaths annually (Ferlay *et al.*, 2011). It is important to note that CP incidences increased by 64.5% between 1990 and 2010 (Lozano, Naghavi, Foreman, Lim, Shibuya, and Aboyans, 2012). Enlargement of the prostate is usually

caused by an abnormal overgrowth and /or swelling of the tissue of the prostate, which then blocks the urethra or opening from the bladder. Problems associated with this condition usually worsen with age, increasing in incidence to about 50% of males by the age of sixty, up to almost 80% past age seventy.

Globally, an estimated 14.1 million new cancer cases and 8.2 million cancer-related deaths occurred in 2012, compared with 12.7 million new cases and 7.6 million deaths in 2008. Projections suggest that there will be 19.3 million new cases of cancer worldwide by 2054 and over 50% of these new cases of cancer including Cancer of the Prostate 65% of cancer deaths worldwide would occur in Low Middle Income Countries (World Health Organisation, 2013). In Nigeria Cancer of the Prostate is the most common male cancer constituting 11-12% of all male cancers and is the second most common male cancer and the second leading cause of cancer related death in the world. Prevalence rates of Cancer of the Prostate within Africa show that Nigeria ranked first out of the nine countries with the highest prevalence of Cancer of the Prostate (Nigeria Cancer Control Plan, 2013).

Early diagnosis and treatment helps in preventing mortality from Cancer of the Prostate . Early diagnosis is done through screening. One of the screening tests done to detect Cancer of the Prostate is Prostate Specific Antigen (PSA). Many men do not screen for Cancer of the Prostate and do not know the risk factors for the disease; in fact, many men never knew they had Cancer of the Prostate . Autopsy studies of Chinese, German, Israeli, Jamaican, Swedish, and Ugandan men who died of other causes found Cancer of the Prostate in 30% of men in their 50s, and in 80% of men in their 70s. If more men know the risk factors associated to Cancer of the Prostate , they will be in better position to make informed choices and to undergo voluntary screening which will help in early detection and treatment (Breslow, Chan, Dhom, Drury, Franks, Gellei, Lee, Lundberg, Sparke, Sternby and Tulinius, 2007).

Similarly, disease attitude expressed as Disability Adjusted Life Years (DALYs) lost to Cancer of the Prostate recorded for Nigeria for the year (2004) was 86,000, with the United States and India having 240, 000 and 120,000 respectively (Cancer Registration, 2009). In sub- Sahara Africa, Nigeria ranked first, with Democratic Republic of Congo and Uganda occupying the second and third places with 22,000 and

15,000 respectively. It was estimated that the age from which Cancer of the Prostate becomes significantly manifested is 45 years. There is 45.3-fold increase in Cancer of the Prostate reported between the age groups of 30-44 and 45-50 for age-specific total deaths for 2005. In most developing countries, Cancer of the Prostate screening is not widespread and men's knowledge of the disease and screening methods for early detection is limited. Researches have shown that a man in his lifetime has about a 16% chance (1 in 6) of being diagnosed with Cancer of the Prostate and 3% (1 in 33) chance of dying of Cancer of the Prostate (Cancer Registration, 2009). In Nigeria, the Cancer of the Prostate risk was 5% of all patients based on a pool of 110.000 men and it has been projected that 70% of new cancer cases will occur in developing countries by 2030 if there were no interventions, it is therefore important for the government and people of these countries to take steps to better understand the epidemiology of cancer, its public health, and policy implications and act decisively (Cancer Registration, 2009).

Although higher awareness levels on Cancer of the Prostate have previously been reported among Nigerian men aged 50 or more years, their knowledge levels on Cancer of the Prostate (i.e., symptoms and signs, detection, treatment, prevention and outcomes) were low (less than 40%) (Oladimeji, Bidemi, Olufisayo,& Sola, 2010). Similar studies in Senegal also showed low levels of specific knowledge on Cancer of the Prostate (Gueye, Zeigler-Johnson, Friebel, Spangler, Jalloh and MacBride, 2003; Punga-Maole, Moningo, Kayembe, Tshikuela, & Kabongo, 2008). Although early detection is an integral component of a successful Cancer of the Prostate therapy, majority (87.5%) of the patients in Nigeria present with advanced disease was due to low knowledge and a lack of awareness about early screening services (MPHS & MMS, 2011).

Several studies in Nigeria show that most Cancer of the Prostate patients report at hospital with advanced disease but their awareness and knowledge levels on prostate are largely undefined. Additional studies also show that perception on self-vulnerability is low among African men and is associated with low awareness and knowledge levels on the disease (Oladimeji *et al.*, 2010) but perception on risk of Cancer of the Prostate has previously not been examined among Nigerian men. Cancer control strategy advocates for enhancing early detection and improving accessibility to diagnostic services for better treatment. Furthermore, this strategy supports preventive

interventions such as enhancing awareness and knowledge levels, promoting good perception on the disease for behavioural change, adopting healthy lifestyles and avoiding exposure to risky environmental carcinogens (MPHS & MMS, 2011).

Uptake of screening among Africans is poor as shown in a study done in South Africa which showed that in spite of knowledge of (CPS) and the availability of such services, majority of men (87%) from higher social and educational backgrounds did not undergo prostate screening, though most patients resided within a 12-kilometer radius of a facility that either provided or could potentially provide screening (Wellensiek, Moodley and Nkwanyana, 2002). Also, the result of a study by Akhigbe and Omuemu (2009) revealed that level of knowledge was not significantly associated with uptake because uptake was both poor among those with good knowledge and those with poor knowledge as only 14% of the respondents had undergone screening.

Cancer of the Prostate screening is done through digital rectal examination (DRE) or through measurement of serum prostate specific antigen (PSA) levels, which is a protein produced by the prostate. Elevated PSA concentration is seen in prostatic cancer, benign prostatic hypertrophy, prostatitis, trauma (bicycle riding) and sexual activity (Hoffman, 2014). It is therefore not a specific screening test. However, despite this and other limitations of PSA, it still remains the best single test for early detection of Cancer of the Prostate (Obertova, Scott, Brown, Hodgson, Stewart, Holmes and Lawrenson, 2014). Mostly, in men without Cancer of the Prostate , their PSA levels is less than 4 nanograms per milliliter (ng/mL) of blood. The chance of having Cancer of the Prostate goes up as the PSA level goes up above this value. For early detection of Cancer of the Prostate , the American Cancer Society recommends that PSA should be done every 2 years for a value less than 2.5ng/mL , while for a value of 2.5ng/mL or higher, it is to be repeated yearly (American Cancer Society, 2015). A study carried out in an urban Nigerian setting concluded that there is remarkable lack of knowledge of CP among the populace and that both (CPS) and serum PSA testing were low (Ajape, Babata and Abiola, 2010). However, in another study where knowledge and risk perception of Cancer of the Prostate were low, it was found that 81.5% of the respondents were willing to be screened for the disease (Oladimeji, Bidemi, Olufisayo and Sola, 2010). Nigerian males have been shown to have a high incidence of Cancer of the Prostate as

documented in a study which revealed an incidence rate of 127/100,000 men (Osegbe, 2007). In another similar Nigerian study, an incidence rate of 114/100,000 men were documented (Eke and Sapira, 2012).

Health locus of control beliefs are cognitions that determine whether health behaviour change will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and failures. Locus of control influences the effort one puts forth to change risk behaviour and the persistence to continue striving despite barriers and setbacks that may undermine motivation. It is directly related to health behaviour, but it also affects health behaviour indirectly through its impact on goals as it influences the challenges that people take on as well as how high they set their goals (Bandura, 1997).

The internal versus external dimension of attribution theory has been specifically applied to health in term of the concept of a health locus of control. Individuals differs as to whether they tend to regard events as controllable by them (internal locus of control) or uncontrollable by them (external locus of control). Wallston and Wallston (2002) stated that health locus of control has been shown to be related to whether an individual changes their behaviour and to the kind of communication style they require from health professionals. According to Murray and McMillan (2003), behavioural modification is greatly influenced by locus of control. They further stated that individuals with internal locus of control are more likely to modify their behaviour faster than those with external locus of control. Murray and McMillan (2006) discovered that men with internal locus of control adjusted well to PSA and lung screening than their external locus of control counterparts.

Religiousness is a multidimensional construct that reflects the shared beliefs and practices of a faith-based, social organization and it has been established that a sizeable body of literature documents relationship between religiousness and outcomes (Miller and Thoresen 2003). One's relationship with a higher power may affect perceived control over health behaviors and outcomes (Thoresen and Harris 2002). For instance, a collaborative relationship with a higher power in the management of one's health, known as an active spiritual health locus of control, may empower people to engage in

behaviors beneficial for their own health. Alternatively, a passive spiritual health locus of control may lead people to rely solely on God to determine their health. Hill and Pargament (2003) note that religious involvement has traditionally been assessed using single global indicators such as denomination or church attendance; however, measurement has evolved into a much more sophisticated and multidimensional approach.

A better understanding of the specific dimensions of religiousness associated with health behaviors (in this case, cancer screening) among Latinas could enable the development of effective, religiously tailored interventions to promote cancer early detection with the ultimate goal of reducing health disparities. Studies conducted with African-American populations suggest that incorporation of religious themes into health interventions may enhance their relevance, improve program participation, and, ultimately, boost intervention efficacy (Campbell et al. 2007). Church based interventions have been used to promote cancer education and cancer screening among low-income countries which Nigeria is not an exception as regards Cancer of the Prostate screening.

Religious belief may have an influence on understanding of, attitudes towards the nature of diagnosis and treatment of genetic disorders. In particular, they may affect an individual's reproductive decision-making (WHO, 2006). Appreciating the prevailing beliefs in a local community is critical to achieving effective health care. Such understanding is necessary to ensure that information is imparted to individuals sensitively and in a way that facilitates understanding. The success of testing and screening programmes rests in part on their acceptance by religious groups and wider community. In Saudi Arabia a pre-marital screening approach was preferred, probably due to religious edicts that oppose termination of pregnancy, 4.2% of the screened individuals were carriers of the Hgb S gene, and about 90% of the couples in Saudi Arabia found to be at risk of having an affected offspring decided to marry despite the known carrier status (Alhamdan, Almazrou, Alswaidi and Choudhry, 2007).

Prevention is one aspect of wellness care that focuses on the health of a person or population with the goal of preventing a disease or illness. It is also the process of reducing the risk of occurrence of a disease process, illnesses, injury, disability or some

unwanted phenomenon. It has three stages which are primary stage, secondary and tertiary stage of prevention which is very important in disease prevention and control (Ruth & Constance, 2007).

Prevention refers to a more fundamental, perhaps truer way to avoid disease, unrelated to prescription drugs or devices, a subject that has drawn insufficient interest from evidence-based medicine so far. This includes what the patient can do personally to delay disease or risk factors, behavioral lifestyle measures that applied sufficiently over the anticipated incubation period of a disease can avoid the appearance of risk factors entirely. Preventive measures can be applied at any stage along the natural history of a disease, with the goal of preventing further progression of the condition. (Giampaoli, 2007)

Research underlines that prevention is necessary. Through high-quality prevention, we can create community environments that foster good health. Prevention is our best hope for reducing unnecessary demand on the healthcare system. Disease prevention covers measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences once established; it is also conceptualized as the process of providing information and persuading people to utilize the information provided in order to prevent diseases (WHO, 1984).

Various health literature has confirm that some of the leading causes of illnesses and death today are related to personal life- style or behavior which can be controlled, or altered through behavior change. It is also a fact that some of the major causes of deaths and illnesses can be delayed or even avoided through behavioural changes (Kalesanwo, 2004). Disease prevention education therefore involves activities that could add more years to qualitative life, people need to be health informed and educated about the adoption of positive health behaviours and avoidance of harmful life style. It is therefore concerned with good personal hygiene, good nutrition, exercise, rest and sleep, avoidance of harmful substances/behavior, control of environmental hazards and building resistance to diseases.

College of Education students in Oyo are basically adolescents. Adolescents constitute one of the most dynamic human resource bases and the period of adolescence

is a very critical stage in the life of every individual. In growing up, adolescents have six developmental tasks to accomplish, which are physical and sexual maturation, independence, conceptual identity, functional identity, cognitive development and sexual self-concept. In dealing with these normal developmental tasks, the transition to adulthood for young Nigerians is complicated by peculiar economic, political and cultural turmoil. Adolescents are caught between traditions and changing culture brought about by urbanization, globalize economic and media saturated environment.

Adolescents and young people experience dramatic physical growth and development along with psychosocial and cognitive changes during puberty. They also experience significant changes in their ability to assess and comprehend complex situations and information and in their desire to become independent and unique individuals.

College years are a period of significant change in the lifestyle of young adults and food patterns established during this time are likely to be maintained for life and may have a long-lasting influence on students' future health and the health of their future families. Many students are occupied with busy lifestyles, spending time in classes, social activities, peer groups, and other irregularly organized activities, and their behaviour are based on rituals, convenience, and social influence. Additionally, young adults are often ambivalent about their future health and the role that health behaviour plays. Due to the absence of chronic medical conditions in this age group, little attention has been paid to the health behaviour of young adult.

Since the focus of health education is on primary prevention which refers to actions aimed at avoiding the manifestation of disease this may include actions to improve health through changing the impact of social and economic determinants on health the provision of information on behavioral and medical health risks, alongside consultation and measures to decrease them at the personal and community level, nutritional and food supplementation, oral and dental hygiene education; and clinical preventive services such as immunization and vaccination of children, adults and elderly, screening exercise as well as post-exposure prophylaxis for people exposed to a communicable disease hence the use of college of education students because it is believed that if they are equipped with the adequate knowledge of the screening at the

prime of their age, it will not be difficult for them to uptake the screening when they reach the time and the attitude shown towards it will be good.

1.2 Statement of the problem

Cancer is a public health problem world-wide affecting all categories of persons; Cancer of the Prostate is a common cancer among Nigerian males, having overtaken liver cancer and it is the second common cause of death in developed countries and among the three leading causes of death in developing countries, Nigeria inclusive. Age is has been regarded as major predisposing factor to having Cancer of the Prostate among men population because as man grow older, the risk of having Cancer of the Prostate is high due to the presence of prostate gland in the male reproductive system and even higher in any individual with family history of CP.

The fear of shame of the outcome of the screening has prevented many people from going for the screening process or procedure as many believe Cancer of the Prostate is attributed to being promiscuous, stigmatization of individual is another challenge as many may not be free to talk about their health predicaments to another person or close friends leading them to hide their health challenges. Furthermore, the lack of knowledge of the disease, lack of adequate health education, limited skilled oncology personnel, past negative experience(s) from clinical settings, poor access to health facilities, cultural and religion belief and negative attitude towards Cancer of the Prostate screening and the low uptake of routine screening among male most at risk of developing Cancer of the Prostate compound the problem. The symptoms of CP often lead to an increased sense of frustration and embarrassment, as well as the disruption of normal activities.

Every 18 minutes, a black man is diagnosed with CP and in every 15 minutes, black men die of Cancer of the Prostate . Nigerian men are 10 times more likely to have Cancer of the Prostate and 3.5 times more likely to die from it due to the risk factors that predisposes them to having it such as family history, environmental factors, high fat diet, gene changes, exposure to chemical, age significantly from 40 years and above most importantly genetic factors as well as high serum androgen level. In the year 2022, 248, 530 men will be diagnosed with Cancer of the Prostate while 34, 130 men will die from Cancer of the Prostate in the year 2022. (Zero prostate, 2020).

Preliminary study by the researcher and several other studies have documented that awareness and uptake of Cancer of the Prostate as well as early diagnosis of the disease are low in the country (Ajape, Ibrahim, Fakeye and Abiola, 2010). Moreover, limited studies in Nigeria, have led to over-reliance on research findings from developed countries, despite the fact that risks and factors influencing the outcomes of the disease are largely different. Finding a way to motivate young adults to know and cultivate positive attitude towards CP screening would represent a way to avoid the development of the disease.

Several studies have been done on cancer and Cancer of the Prostate but most of these studies were on prevalence and causes, methods and impact; some also focused on female secondary schools while some focused on undergraduates students of faith-based Universities with little research effort on means to reduce the incidence of the disease and also among the college students. Famuyiwa (2007) worked on impact of cancer education programme on knowledge, attitude and preventive behaviour of students in selected female senior secondary schools in Ibadan, Nigeria while Falade (2012) focused on effects of bibliotherapy and lecture-discussion methods on undergraduates' knowledge and attitude towards cervical cancer in faith-based Universities in South-Western Nigeria. Abdalla, Mustafa and Zaher (2013) also worked on Cancer of the Prostate epidemiology and risk factors while Arafa, Rabah and Wahdan (2012) also focused on awareness of general public towards cancer prostate and screening practice in Arabic communities hence this study examined the effects of PCE on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among male college of education students in Oyo state.

1.3 General objectives of the study

The main objective of this study was to examine the effects of Cancer of the Prostate education on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo.

Specific Objectives of the study
The study achieved the following specific objectives:

1. Established the main effect of Cancer of the Prostate education on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

2. Determined the main effect of religious affiliation on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

3. Examined the main effect of health locus of control on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

4. Found the interaction effect of Cancer of the Prostate education and religious affiliation on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

5. Established the interaction effect of Cancer of the Prostate education and health locus of control on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

6. Found the interaction effect of religious affiliation and health locus of control on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

7. Examined the interaction effect of Cancer of the Prostate education, religious affiliation and health locus of control on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state.

1.4 Research Questions

This study provided answers to the following research questions

1. What is the level of knowledge of Cancer of the Prostate among college of education male students in Oyo state?

2. What is the attitude towards the willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State?

1.5 Hypotheses

The following hypotheses were tested in this study

1. There will be no significant main effect of treatment on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

2. There will be no significant main effect of religious affiliation on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

3. There will be no significant main effect of health locus of control on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

4. There will be no significant interaction effect of treatment and religious affiliation on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

5. There will be no significant interaction effect of treatment and health locus of control on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

6. There will be no significant interaction effect of religious affiliation and health locus of control on
   a. knowledge
   b. attitude
   c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

7. There will be no significant 3-way interaction effect of treatment, religious affiliation and health locus of control on
   a. knowledge
   b. attitude

c. and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo State

1.6 Delimitation of the study

The study was delimited to the following:

1. Pretest-posttest control group quasi-experimental research design
2. All college of education male students in Oyo State as population for the study
3. Two hundred respondents as sample for the study
4. Independent variable of Cancer of the Prostate education
5. Dependent variables of knowledge, attitude and willingness to uptake Cancer of the Prostate screening
6. Cancer of the Prostate education training package, self-structured and adapted questionnaire as instrument for data collection
7. Multi-stage sampling procedure
8. Descriptive statistics of frequency counts, percentages and pie charts to analyse demographic data and research questions and inferential statistics of Multivariate Analysis of Covariance (MANCOVA) to test all hypotheses at 0.05 level of significance
9. Five (5) trained research assistants

1.7 Limitations of the Study

Attrition was a major limitation to this study as some of the participants were not able to complete the programme due to academic demand and COVID-19. Another limitation of this study was lack of empirical evidence for continuation of behaviour learnt by the participants during and after the study. Lastly, since the participants were camped, the researcher was unable to control some extraneous variables such as watching films and internet use (for information on Cancer of the Prostate) which may have effect on the result. However, the researcher also tried as much as possible to carry out the study in the most scientific way that reduce all extraneous variables to the least possible.

1.8   Significance of the study

This study provided empirical data on the effects of CP education on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo state. The finding of this study was helpful in facilitating implementation of programmes and interventions that contributes to reproductive life style of an individual and the society at large. It also help in creating awareness to the generality of male population on the importance of prostate screening in a bid to reducing mortality and morbidity rate of incidence both in the society, among health workers and the country at large. It also help in reducing the risk of progression of CP among men and also reduce reproductive health issues among the male population as well as to stay clear of risk factors that could predisposes men to having being vulnerable to the scourge thereby leading to mortality level among men. The study provided useful information to the ministry of health in creating awareness programme, intervention packages and educational intervention in curtailing the incidence of the Cancer of the Prostate .

The study provided useful steps as to the presentation of the disease early enough at the facility (clinic) which assist in the area of diagnosis, treatment and cure rather than presenting the case when it will be too late to treat and cure thereby claiming lives.

1.9   Operational definition of terms

Knowledge is defined as having information on Cancer of the Prostate . The information includes; what the signs and symptoms are, and treatment and prevention modalities for Cancer of the Prostate

Cancer of the Prostate It is a type disease that affects a gland in the male reproductive system

Uptake of Cancer of the Prostate screening: is the willingness to carry out the recommended action (Cancer of the Prostate screening such as direct rectal examination, prostate specific antigen and biopsy) by the participants.

Attitude: It is disposition of an individual or group of people towards an event.

Cancer of the Prostate Education: It covers measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences once established.

Health locus of control: How people perceived the cause/causes and having control over Cancer of the Prostate or not

CHAPTER TWO

LITERATURE REVIEW

CONCEPTUAL FRAMEWORK FOR THE STUDY

Independent Variables	Moderating Variables	Dependent Variables

Experimental group

Prostate cancer Education

Health Locus of control

Internal

External

Religious affiliation

Christianity

Islam

Knowledge of Prostate cancer Screening.
Attitude towards Prostate cancer Screening.
Uptake of Prostate

Control group

Personal hygiene
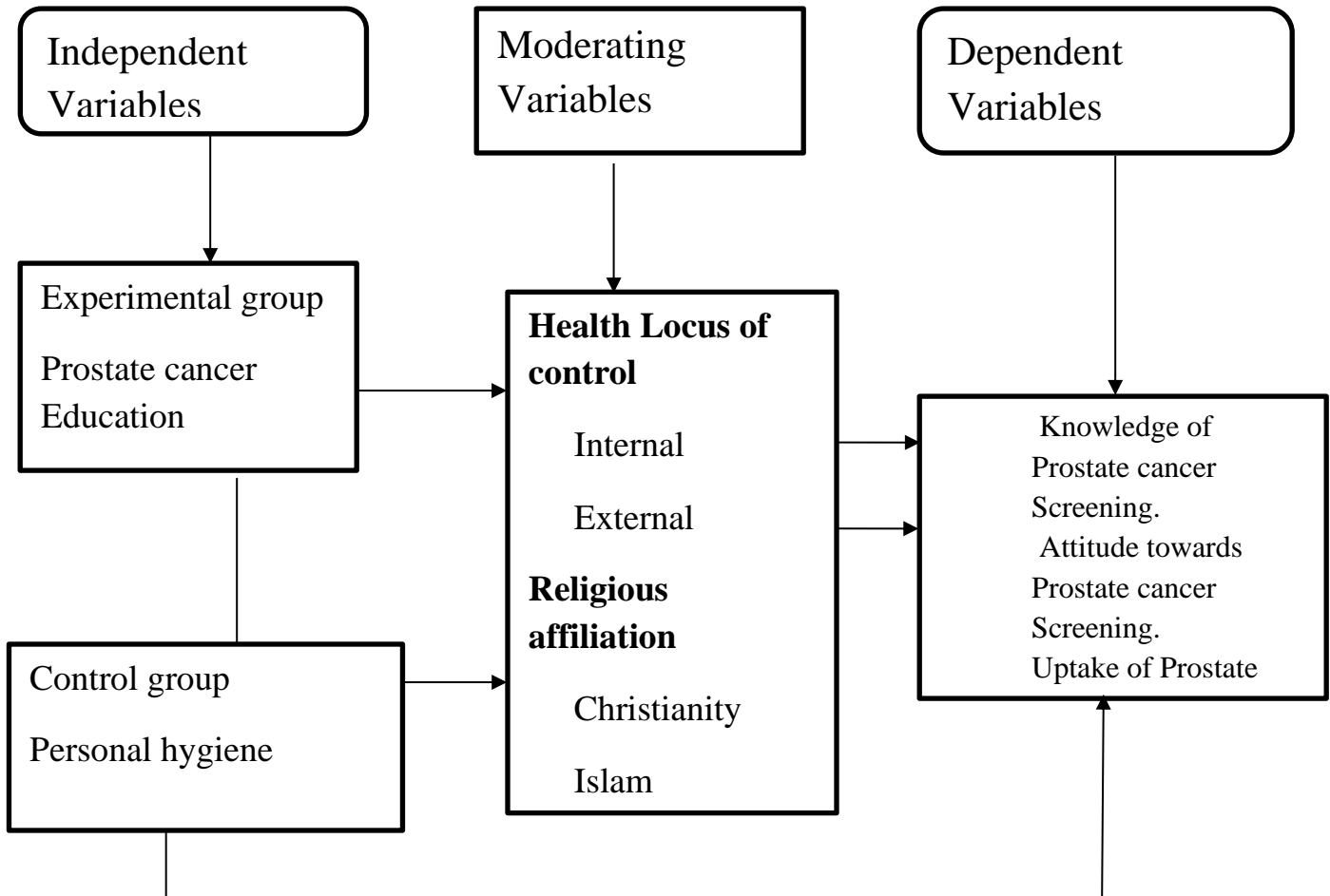
Fig. 2.1: Conceptual framework on the effect of Cancer of the Prostate education on knowledge, attitude and willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo.

Source: Researcher.

In this study, a conceptual framework was developed by the researcher around the intervention with a view to improving the knowledge of Cancer of the Prostate screening among the college students. From this model, disease education is the treatment package to be used in the study while environmental health issue will be used for the control population. The package is the independent variable in the frame work because it the variable to be manipulated by the researcher in order to determine its effect on the dependent variable which is knowledge, attitude and uptake of CPS. The moderating variables are two, which are religion and locus of control

THEORETICAL REVIEW

Health Belief Model
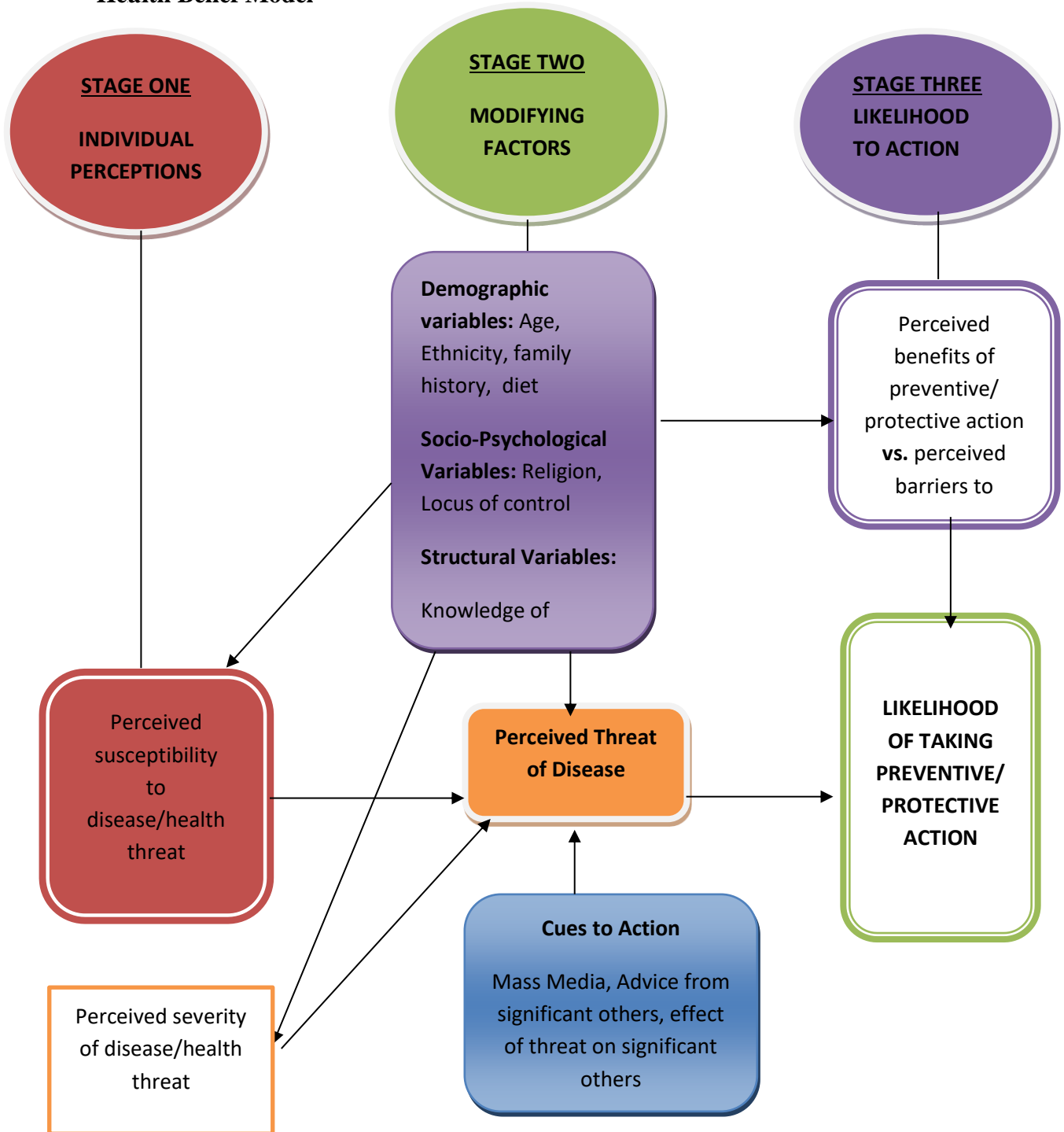
Fig. 2.2 Health belief model, explaining the perception of the individual in modifying factors of likelihood of action taking

Source: Modified from Glanz et al, 2002, Pg. 52 and Udoh, (2002), Pg. 42

The theoretical framework to be adopted in this study is the Health Belief Model (HBM) (shown above) because of its suitability in the study. According to Champion and Skinner (2008), the model is a theoretical psychological model used since the 1950's to explain an individual's behaviour in a health perspective. The model has been modified and developed over the years and is centered on the following concepts: perceived susceptibility, perceived severity, perceived benefits, perceived barriers and cues to action. However, based on empirical researches, self-efficacy was added to the model in the 1980's. Perceived susceptibility refers to an individual's belief as to the likelihood for a disease or a condition (i.e. Cancer of the Prostate), while perceived severity is a person's belief about the seriousness of a condition (in this case, Cancer of the Prostate).

The concept perceived benefits comprises the individual's beliefs about the advantage of an action for reducing the disease or the threat. In addition, perceived barriers comprise a person's belief as to negative aspects of a recommended action (health action, i.e. Cancer of the Prostate screening). Cues to action are defined as triggers for the recommended health action, i.e. strategies that activate readiness for the health action, for example recommendations from HCPs to vaccinate or attend cervical cancer screening, while self-efficacy refers to an individual's belief as to his/her own ability to take action (health action, i.e. Cancer of the Prostate screening).

Demographic and socio-psychological factors are modifying factors that can influence individual perceptions. Gender, age, cultural and socioeconomic aspects, personality and knowledge can have an indirect influence on the individual's health behaviour. As stated by Champion and Skinner, one limitation of HBM is that it is a cognitive model that does not consider emotional aspects of an individual's behaviour (Champion and Skinner, 2008).

According to HBM, it is important for a person with risk behaviour to recognize the risk in order to be able to change his or her behaviour. The benefits have to outweigh the barriers for a person to act upon the health promotion, for example participating in a screening (Pap smear) or vaccination programme.

HBM has previously been used in studies of sexual risk behaviour (Royce, Pelmuter, and Krauss, 2007; Gottval, Tyndal and Huglond, 2010) and attitude to HPV

and HPV vaccination among adolescents, young women and parents (Reiter, Brewer and Gotlieb, 2009; Jueaskova, Bari and O'Brien, 2011; Donadiki, Jimenez-Garcia, and Hernandez-Barrera, 2014).

There are cipouis evidences to show that educational school-based interventions based on HBM can be effective in increasing adolescents beliefs, knowledge and health behaviour (Painter, Sales and Pazol, 2010; Gottvall, et al., 2010; Marek, Degez and Rerek-Nagy, 2011; Painter, Sales and Pazol, 2011; Gargano, Pazol and Sales, 2011). Although only few have focused on cervical cancer with fewer based in Nigeria.

2.1 An overview of cancer in the world

Cancer is a leading cause of death worldwide and accounted for 7.6 million deaths with estimated 13% of all deaths in 2008 (World health science, 2010). About 70% of all cancer deaths occurred in low- and middle-income countries (World health science, 2010). Deaths from cancer worldwide are projected to continue to rise to over 13.1 million in 2030 (Globocan, 2008 & World health science, 2010). The United States has the seventh highest cancer burden in the world (American Institute for Cancer Research, 2011). Among the 50 nations with the highest overall cancer rates in the world, Denmark takes first place and South Africa comes in at number 50. Ireland, Australia, New Zealand, Belgium, and France fill the slots in between Denmark and the United States (American Institute for Cancer Research, 2011).

Cancer burden in developing countries is a threat to lives because and exacts a heavy morbidity, mortality and high cost in these countries (World health science, 2010). The countries with lowest prevalence of cancer are Northern Africa, Southern and Eastern Asia (World health science, 2010). For both men and women, the 5 most common cancers are those of the lung, stomach, breast, liver, and colorectal (American institute for cancer research, 2011). 85% of cervical cancer cases and deaths occur in developing countries. India is the second most populous country in the world and it accounts for 27% of the total cervical cancer deaths (Parkin, Almonte, Bruni, Clifford, Curado, & Pineros, 2008). Cervical cancer rate is the lowest in Western Asia, Australia, New Zealand, and North America (American institute for cancer research, 2011).

The disproportionately high burden of cervical cancer in developing countries like Nigeria is largely due to lack of screening (Mathew & George, 2009). Worldwide, the highest incidence rates of cervical cancer are in Eastern, Western, and Southern Africa, as well as South Central Asia and South America (Vizcaino, Moreno, & Bosch, 2000). According to International network for cancer treatment, (2013), poor health care and cancer management program, poverty, limited Government fund for health care expenditure, lack of human resources are the challenges facing health care system in developing countries. Lack of health care professionals trained in cancer care, lack of resources for cancer care, migration of health care professionals, poor prevention program, and ineffective screening program are also major problem with cancer care in developing countries (International network for cancer treatment, 2013).

According to Sudarshan, (2013), social stigma and exclusion associated with diagnoses of cancer is a huge challenge for many patients in low and middle income countries in addition to the poor socioeconomic status. With the increasing cancer burden in Africa, cancer is given low public health priority largely because of limited resources, lack of awareness of the magnitude of present and future cancer burden among policy makers, public and international health care agencies (Sudarshan, 2013). The occurrence of cancer in Africa differs from economically developed countries like North America; by the type of major cancer, stages at diagnosis, survival, incidence and mortality rate (United Nations, 2010). Zambia, Malawi, Mozambique and Tanzania have the highest incidence of cervical cancer with 50 cases per 100,000 worldwide (Jemal et.al, 2010).

This high incidence is due to high prevalence of human papillomavirus (HPV) infection as a cause of cervical cancer in addition to lack of screening services like Pap smear for prevention and early detection (Ferlay et.al, 2010While in Eastern Africa, cervical and breast cancer was the most common cancer diagnosed and the most common diagnosed in South Africa with 9,000 cases and 4,500 deaths in 2008 (Ferlay et.al, 2010). Northern and South African women have the highest incidence of breast cancer in African (Vorobiof, Sitas & Vorobiof, 2001). For example in Zimbabwe the rate of breast cancer was six times higher among whites with a figure of 127.7% than blacks with a figure of 20.4 in 1990-1992 (Vorobiof, Sitas & Vorobiof, 2001). Middle and West

Africa have the same rate of cervical and breast as compared to Southern, Northern and Eastern Africa (Mackay, Jemal, Lee & Parkin, 2006). Breast cancer is the most common diagnosed in Sub-Sahara Africa and cervical cancer is the leading cause of deaths in Sub-Sahara Africa as well (Mackay, Jemal, Lee & Parkin, 2006).

Among men in Africa, the patterns of cancer occurrence vary to that of African women. Kaposi sarcoma was found to be the major cause of death in Eastern Africa in 2008 with an estimated number of 16,000 cases and 13,700 deaths (Globocan, 2008). The incidence and mortality rates in Eastern Africa were more than twenty times high as that in Northern Africa which was consistent with geographical variations of HIV/AIDS epidemic (Globocan, 2008). Kaposi sarcoma has been known as HIV/AIDS associated cancer caused by human papilloma virus (Ziegler, Newton & Bourboulia, 2009). After Kaposi sarcoma, esophageal cancer was secondly the most common diagnosed and second leading cause of deaths (Ocama, Kagimu & Odida, 2008: 80-84). The exact cause of esophageal cancer among Eastern Africa men are not yet proven but are attributed to cigarette smoking, heavy alcohol consumption and poor dietary pattern such as intake of maize diets low in vegetables and fruits (Schneider, Norman, Steyn & Bradshaw, 2000).

Cancer of the Prostate is most common in Southern Africa, Sub-Sahara, Western Africa and Africa at large and also the leading cause of deaths in Sub-Sahara, Western and Africa in general (Globocan, 2008). Liver cancer is the most commonly diagnosed in middle Africa, followed by West and Sub-Sahara Africa and it was the leading cause of death in middle Africa in 2008 (Blumberg, 1984). Liver cancer was also revealed to be second leading cause of deaths in Sub-Sahara, Western Africa with an estimated figure of 13,600 and Africa at large in 2008 (Blumberg, 1984). Chronic infections like hepatitis B virus (HBV) and hepatitis C virus (HCV) were discovered to be a contributing factor to liver cancer in Sub-Sahara Africa (Lehman & Wilson, 2009).

After lung cancer, the incidence and mortality rate of bladder cancer among men in Northern Africa are twice high as seen in South Africa (Sitas, Urban & Bradshaw, 2004). Egyptians have the highest incidence of bladder cancer (Parkin, 2008). Childhood cancer is very rare in Africa (Steliarova, Stiller & Kaatsch, 2004). In developed countries, more than 80% of children with malignancies can be treated unlike in

developing countries that have the highest population of children with a less opportunity for treatment and cure (Brown, Bamigboye & Sodeinde, 2008).

Majority of cancers in Africa are diagnosed at late stage simply because of lack of screening and early detection services, limited awareness of signs and symptoms of cancers among the public and lack of health care givers with oncology specialty (World health organization, 2002). In Africa, the chance of surviving from cancer is very poor especially in patients diagnosed at screening and then place on treatment (World health organization, 2002). According to World health organization, (2002), availability of cancer drugs were only 22% and only 11% of the population in Africa can afford the treatment.

2.2   Overview of cancer in Nigeria

Cancer is a generic term for a large group of disease that can affect any part of the body. One defmite feature of cancer is the rapid creation of abnormal cell that grow beyond their usual boundaries (uncontrolled growth) and which can then jnvade adjoining parts of the body (invasion) and spread to other organs, Cancer arises from one single cell. The transformation from a normal cell is a multistage process, typically a progression from a pre-cancerous lesion to a malignant tumour. About 30% of cancer could be prevented by modifying or avoiding key risk factors, according to a 2005 study by international cancer collaborations (WHO, 2007).

The burden of cancer in Nigeria is appreciable. According to the World Health Oganization (2007), there is an estimated 100,000 new cancer cases in the country each year, although observers believed that the figure could become as high as 500,000 new cases annually by 2015. It is feared that by 2020, cancer incidence for Nigeria males and females may rise to 90.7/100,000 and 100.9/100,000 respectively. It is also anticipated that by 2020, death rate from cancer in Nigerian males and females may reach 72.7/100,000 and 76/100,000 respectively but this is only a fragment compared to the projection by WHO.

Providing clear evidence that healthy lifestyle and public health action by government and health practitioners could stem the trend and prevent as many as one third of cancer worldwide, the report revealed that in recent times, cancer has emerged as a major public health concern in developing countries, matching its effect in

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developed countries. The bottom line of the report is that except urgent actions are taken by individual and government and health practitioners, cancer rate are set to increase at an alarming rate globally. Adebamowo (2008) disclosed that while infectious diseases such as HIV and AIDS are the most significant contributors to disease burden in Nigeria, complex diseases such as cancer are fast emerging as an important health care priority for the future. According to Adebamowo (2008) while improvement in public health and increase funding for health care initiative are leading to a decreased in incidence of communicable diseases, the attendant increase in life expectancy. is precipitating an increase in the incidence of all cancer, as a higher proportion of the population reaches the complex disease-bearing age. Several other factors are likely to change the pattem and prevalence of cancer in Nigeria in the coming decades, greater awareness of cancer, improved access to health care through new programmes such as the National Health Insurance Scheme, empowerment of women and steadily improving economie and social factors will increase rates of cancer diagnosis at the same time that an increased rate of obesity, reduced physical activity and more westernized diets are likely to contribute to the development of more types of cancer.

Worse still, clinical services for cancer are grossly inadequate and poorly distributed. Only a few centres have functioning radiotherapy equipment. 'Radiological services are generally available but access is seriously limited by high cost. The same argument of high cost goes for chemotherapy. Pathology services are generally available but the scope of services is limited. Molecular diagnostic methods are not widely available. Surgery is often performed by surgeons whose primary clinical practice is not oncology and there is a very limited scope for multidisciph'nary cancer care. There is increasing awareness of modern palliative care and pain management which is particularly useful as patiënt often present with advanced diseases and physicians have limited access to treatment that offer the prospect of prolong survival.

Essentially, the most common cancer documented in Nigeria to date are cancer of the uterus and breast for women and liver and Cancer of the Prostate for men. Medical records indicated that cancer registration in the country officially began in 1960 but it was not until 1990 that a National Headquarter of Cancer Registries was established in Ibadan, Oyo State. Since then, the institution has witnessed little or no activity.

According to Abioye (2002), the Ibadan Cancer Registry was initiated in 1960 and covers all persons with cancer diagnosed in the different clinics and hospitals in the city. The majority of cancer patiënt and all biopsies taken from cancer patiënt are referred to the University College Hospital, where the Cancer Registry is based. Thïs hospital is the main treatment and care centre. It is considered that most patiënt suffering from malignant disease attending either private practitioners or hospitals will be registered.

World Health Organization, (2007) reports revealed that there are presently more deaths from cancer than from HIV/AIDS, tuberculosis, and malaria. HIV itself is an additional cause of the increased incidence of cancer in Nigeria (Ogunbiyi, 2013). High incidence of lung cancer among women had called attention to the culpability of chemical pollutants derived from wood-burning and the use of charcoal in cooking (Ogunbiyi, 2013). These environmental risks are also considered important in cases of lung cancer among young people regardless of their gender (Ogunbiyi, 2013). In major cancer treatment Centre's in Nigeria, it is estimated that about one out of ten cases seen will be Cancer of the Prostate (Ogunbiyi, 2013). Cancer of the Prostate progresses more rapidly in Nigerian environment (Ogunbiyi, 2013). According to WHO, (2013) cancer accounts for 13 percent of all deaths registered globally and 70 percent of that figure occurred in middle and low income countries e.g. Nigeria , research has shown that In Nigeria, estimated numbers of 10,000 cancer deaths are recorded annually while 250,000 new cases are recorded yearly (World health organization, 2013). Most cancer treatment Centre's in Nigeria today lack modern diagnostic equipment for diagnosing the condition and there is also lack of awareness about cancer especially the causative factors, preventative measures, treatment options and available facilities for prompt cancer treatments (Andreas, 2013)

Studies has shown that in Nigeria, the public still believe that cancer is a disease of the wealthy, elderly and developed countries, while victims of the disease in Nigeria still regard it as their fate and as such death rate is high (Abdulkareem, 2009). According to Osinubi, (2011) the increasing incidence of cancer in Nigeria is due to lack of awareness and apathy and this has led to late present presentation of patients to hospitals were only radiation and palliative care is the best option. In addition to improved child survival due to improved immunization against childhood infections and management

modalities, the effect of malignancies in childhood mortality has reduced (Abdulkareem, 2009). Data from various parts of the country showed that the five most common childhood cancers are Non-Hodgkin's lymphoma in which majority are Burkitt's lymphoma, retinoblastoma, nephroblastoma, Sarcomas and Leukemia (Mohammed & Aliyu, 2009). The reduce rate of Burkitt lymphoma has been attributed to improved living condition and prompt malaria control (Mohammed & Aliyu, 2009). Retinoblastoma and nephroblastoma are common in children under 5years, while lymphomas and sarcomas occur in older children (Abdulkareem, 2009).

Poor management outcome due to late presentation, poverty and unavailability of radiotherapy are also serious health challenges in Nigeria (Abdulkareem, 2009). More than 70% of childhood cancer is now curable with best modern therapy, the treatment is expensive and majority of children approximately 80% of world's children presently have little or no access in economically disadvantaged countries like Nigeria (Abdulkareem, 2009). Although available data are hospital based, it is still very obvious that cancer incidence is rising in Nigeria and majority of the common cancers are preventable or curable if detected early (Abdulkareem, 2009). Autopsy study from Lagos revealed that 39.7% of childhood deaths are due to infective causes and only 3.3% of deaths were attributed to neoplasm (Mohammed & Aliyu, 2009).

2.3   Knowledge of cancer in Nigeria

The most effective weapon against cancer is knowledge and it is powerful in reduction, prevention and early detection (Cancer Association of South Africa, (CANSA, 2013). Knowledge about the cancer burden enables the development, implementation, monitoring and evaluation of cancer strategies that prevent, cure and care. This knowledge is lacking in many low- and middle-income countries, making cancer control efforts less effective (International Agency for Research on cancer & cancer Research UK, 2012). Awareness on cancer is an important aspect, and physicians need to focus on that as well just as on prevention of heart disease and diabetes. Fortunately, many of the recommendations for lowering the risk for other chronic conditions are applicable to reducing the risk for cancer. "Thus, it is important for physicians and other healthcare providers to understand the importance of what lifestyle behaviour can play in reducing cancer risk. It has also been discovered that patients in Sub-Sahara region of Africa

present with locally advanced or metastatic disease due to limited screening program, inadequate diagnostic facilities, lack of health education, limited skilled oncology personnel, poor access to health care facilities, past negative experience, physicians attitudes, cultural and religious beliefs, and ignorance (Woods, Montgomery, Belliard, Johnny & Colwick, 2004).

There is a remarkable lack of knowledge about cancer screening among the population in Nigeria (Ajape, Babata & Abiola, 2010). In addition to the treatment complexity and cost, death rate from Cancer of the Prostate are increasing daily due to negative attitude, beliefs, poor knowledge towards Cancer of the Prostate screening and poor management skills (National Cancer Society, 2012). Education and knowledge about Cancer of the Prostate and screening is low in Nigeria (Akinremi, Ogo & Olutunde, 2011). According to Ejike & Ezeanyiwa, (2009), lifestyle changes among Nigerian men such as eating of westernized diet may lead to increased incidence of chronic diseases like cancer. According to Odedina, Akinremi, Reams, et al, (2009 & Akinremi, Ogo & Olatunde, (2011), immigration of Nigerian men to the United States significant impact on Cancer of the Prostate knowledge and beliefs

According to Nnodimele, (2010), awareness and knowledge about Cancer of the Prostate is low in Nigeria and only 1.5% of their research participants were able to identify specific symptoms. According to Nnodimele et al, (2010). From the study done by Nnodimele et al, (2010) some of their participants that not been aware of CP can prevent one from having Cancer of the Prostate and they believe that Cancer of the Prostate has no cure. There is also lack of awareness among men in Benin-City about Cancer of the Prostate screening (Oghenetejiri, 2007). Substantial number of women in Benin City, Nigeria is still ignorant of breast cancer issues and a large number of women that have knowledge are yet to put knowledge and attitude into practice (Azubuike & Okwuokei, 2013). According to Akigbe & Omuemu, (2009) their study revealed that there is poor knowledge of breast cancer, the screening methods and as well as low level of practice of breast examination among these health workers in Benin-City.

2.4 Attitude towards cancer in Nigeria

Studies have reported that in Nigeria, lots of the women are found to be ignorant of breast cancer and this is coupled with late presentation at hospitals (Azubuike & Okwuokei, 2013). The incidence and rate of cancer in Nigeria is such a virus that many lives are at risk, and this has been attributed to high adoption of western life style and diet (Fregene & Newman, 2005) & (Azubuike & Okwuokei, 2013). Disbelief and misconception about breast cancer has also been reported as contributory factor to late reporting of patients to hospitals (Luquis & Cruz, 2006) & Azubuike & Okwuokei, (2013: 1). According to Azubuike & Okwuokei (2013), many Nigerians do not seek screening because they believe they cannot have cancer. Another major reason for non-participation in any of the cancer preventive measures was the 'feeling that one cannot get breast cancer', which is followed by lack of awareness, forgetfulness and avoidance of fear and anxiety (Azubuike & Okwuokei, 2013). Tendency for positive attitude towards preventive measures in Nigeria could be seen to be high, but there is still high level of superstitious beliefs and ignorance that could hinder good practice towards cancer among many in Nigeria (Azubuike & Okwuokei, 2013).

2.5 Overview of the problem of Cancer of the Prostate in Nigeria

Cancer of the Prostate is a disease of the prostate gland that presents as either asymptomatic disorder (Persec et al. 2010) or a systemic malignancy (Bambury & Gallagher, 2012). It is marked by a disruption of the prostate architecture causing abnormal structure of the prostate and an increase in Prostate Specific Antigen (PSA) (Lawrentschuk & Perera, 2016). The risk factors for Cancer of the Prostate include age, sex, lifestyle, diet, race and family history of CPa with age being highlighted as significantly common. Almost two out of every three Cancer of the Prostate cases are found in men over 65 years of age. Symptoms of Cancer of the Prostate include difficulty in urinating, frequent urination and blood in urine which are not usually present especially in the early stages of the disease, hence the importance of screening (Cancer of the Prostate UK, 2014). Prostates specific antigen screening test is used as a biomarker to test for the Cancer of the Prostate marker. If the PSA results are elevated with persistent increase in the results, it is an indication of cancerous prostate cells (Duffy, 2011). However, the first step in screening for CPa is Digital Rectal Examination

(DRE) (Loeb & Catalona, 2009). Treatment choices play a very important role depending on the stage of the Cancer of the Prostate ous cells (Cancer of the Prostate UK, 2014).

Current researches seem to validate Cancer of the Prostate (CPa) as the leading cancer among men of African descent in the USA, Caribbean, and Sub-Saharan Africa (SSA). In 2008, it was estimated that CPa deaths were five times greater in SSA than that observed among African-Americans or their Caucasian counterparts. It was also estimated that by 2030 the incidence rate would have doubled in Africa (Rebbeck TR et al., 2013).

Recently, a higher mortality rate of Cancer of the Prostate among African-Americans than Caucasians (>3times higher than US born man) was reported (Mutetwa et al., 2010). These trends suggest that men of African descent appear to be at greater risk of getting CPa.

A study conducted to assess the KAP of men regarding Cancer of the Prostate and uptake of screening tests in various populations in the United States, reported that KAP of Cancer of the Prostate appears to be low among Black American men, contrasting those in low and middle income countries, particularly Sub-Saharan Africa (Nakandi et al., 2013). In addition, knowledge levels among multi-ethnic black men in America were reported to range from 71.1 - 81.9 % taking demographic variables into consideration. While a KAP study done in Uganda determined that majority of the respondents 324 (59.4%) had heard about Cancer of the Prostate , while 9 % of the respondents knew about serum PSA testing. Consequently, only 3.5 % of the respondents in Uganda had ever undergone a serum PSA test (Ellison et al., 2014)

According to Hass, Nicholas Delongchamps, Brawley, Wang, & Gusstavo de la Roza, (2008), Cancer of the Prostate is the most common diagnosed non-skin cancer in the United States and the third leading cause of cancer deaths. In many industrialized countries like United States, it is one of the most common cancers and it's among the leading causes of cancer deaths (Hass et al, 2008). It may be less common developing countries but with a high incidence and mortality rate (Deongchamps, Singh, & Haas, (2007); as cited in Hass et al, (2008). Incidence of Cancer of the Prostate is influenced by the intensity of diagnostic measures and efforts, and the mortality figures reported for

any particular geographic region depend on the reliability of their cancer registries (Nicholas et al, 2008). United States has one of the most active Cancer of the Prostate early detection programs in the world, and also the highest incidence of Cancer of the Prostate ; this is attributed to good cancer registry in United States (Potosky, Miller, Albertsen & Kramer, (1995); as cited in Hass et al, (2008). Cancer of the Prostate prevalence is higher among American men of Caucasian and African origin, but the trends are similar with all other countries reports (Sanchez-Chapado, Olmedilla, Cabeza, Donat, & Ruiz, 2003) & (Hass, et al, 2008). United States have experienced a constant drop in mortality rate since the last decade (Deongchamps, Singh & Haas, 2007). The clinical incidence, mortality, and to a lesser degree prevalence of Cancer of the Prostate varies among different geographical regions of the world (Globocan, 2008).

Cancer of the Prostate is the most common in Southern Africa, Sub-Sahara, Western Africa and Africa at large and also the leading cause of deaths in Sub-Sahara, Western and Africa in general in 2008 (Globocan, (2008); as cited in American cancer society, (2011). According to National cancer registry, (2004) & CANSA, (2013), Cancer of the Prostate is most prevalent among white South African males than black. Recent statistics indicates that black South African males are at increased rate of Cancer of the Prostate and mostly develop the aggressive type (CANSA, 2013). According to Health 24, (2012), it is estimated that 20% of South African men have Cancer of the Prostate and has 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 Cancer of the Prostate (Nnodimele et al, 2010). In West Africa e.g. Ghana, Cancer of the Prostate is found to be the second leading cause of cancer death among Ghanaian men. It is estimated that almost 1,000 Ghanaian men are diagnosed with Cancer of the Prostate and may lose their lives. According to Mathew, Mensah, Gepi-Attee, Kwami, Kwabena, Asante, Klufo & Yeboah (2013), each year about 750 men die of Cancer of the Prostate .

2.6 Aetiology and description of Cancer of the Prostate

Pathological abnormalities occur more frequently in the prostate than elsewhere in human males. These changes increase in prevalence with increasing age and include benign prostatic hyperplasia and adenocarcinoma. Cancer of the Prostate is an adenocarcinoma that may be slow growing, aggressively evolving and metastising predominantly in the bones and lymph nodes (Grover & Martin, 2002). Cancer of the Prostate causes pain, difficulty in urinating, anomalies of sexual intercourse and erectile dysfunction. Globally, Cancer of the Prostate is the eleventh leading cause of death from cancer in all age groups and the sixth leading cause of cancer-related deaths in men (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). Development of Cancer of the Prostate is influenced by age, ethnic and genetic differences, and global distribution. In addition, androgens, environment, meat and animal fat intake among other factors are important risk factors for Cancer of the Prostate development (Grover & Martin, 2002).

Description of the prostate gland

Cancer of the Prostate begins when cells in the prostate gland start to grow out of control. The prostate is a gland found only in males, located below the bladder and just in front of the rectum of male reproductive system, and it is the size of a walnut which surrounds the tube that empties urine from the male bladder. The primary function of the prostate gland is to produces some of the fluid that nourishes and transports sperm. During Ejaculation, the vasa deferentia enbles the flow of fluid into the urethra, and send them with sperm as semen. The urethra, which is the tube that carries urine and semen out of the body through the penis, goes through the center of the prostate Just behind the prostate are glands called seminal vesicles that make most of the fluid for semen.
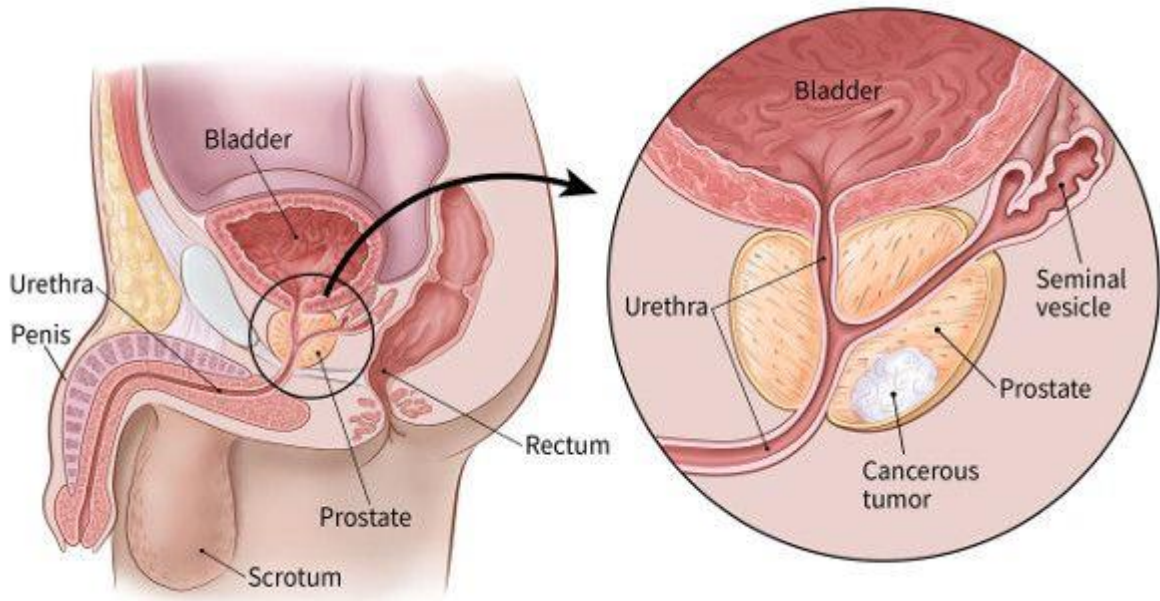
Fig 2.3: The diagram of the prostate gland

The size of the prostate can change as a man ages. In younger men, it is about the size of a walnut, but it can be much larger in older men

2.7 Epidemiology of Cancer of the Prostate

Like all the other cancer types, the origin of CPa is unknown. Regardless, there may be certain factors that dispose men to being at risk of CPa. These factors include age, race, and family history of Cancer of the Prostate , certain prostate changes (Prostatic Intraepithelial Neoplasia) and some type of genome. However, having a risk factor does not mean that one will necessarily get Cancer of the Prostate (Zhou & Magi-Galluzzi, 2008).

Cancer incidences and mortality rates vary worldwide. In the United states CPa is the most common malignancy affecting men and is the second leading cause of cancer deaths (Bashir, 2015). However, Cancer of the Prostate differs between geographical and different ethnic groups. Chu et al. (2011) reported that the rates of CPa vary about 8 times within SSA, with the lowest rate reported in West Africa and highest rates reported in the East. With the economy in Africa improving and increasing adoption of western style of living, it is likely that an increase in the incidence rate of CPa in Africa will occur with time as projected (Rebbeck et al.,2013)

The health or epidemiological transition is driven by increased urbanization, improved health care, western lifestyle and increasing age are some of the core factors that drive the trend towards non-communicable diseases, including cancer in Africa. Based on Namibia DHS 2013-2014, the factors that have been observed to contribute to an increased incidence of CPa are economic status, alcohol intake, smoking, diet, inactivity, age, gender and ethnicity.

Cancer of the Prostate is the second most frequently diagnosed male cancer in the world (899,000 cases or 13.6% of male cancers) and the fifth most common cancer (Ferlay *et al.*, 2011). Nearly three-quarters of the registered cases occur in developed countries (644,000 cases) (Ferlay *et al.*, 2011). Incidence rates of Cancer of the Prostate vary by region and continent, largely due to differences in the uptake of the practice of Cancer of the Prostate screening and subsequent biopsy thatare widespread in Europe and North America (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). Incidence rates are relatively high in certain developing regions such as the Caribbean, South America and Sub-Saharan Africa (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). With an estimated 258,000 deaths in the world in 2008, Cancer of the Prostate is the sixth leading cause of death from cancer in

men (6.1% of all cancers) (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). Mortality rates are generally high in predominantly black populations (Caribbean, 26.3/100,000 and Sub-Saharan Africa, 18-19/100,000), very low in Asia, and intermediate in Europe and Oceania (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). In 2008, the European union recorded 323,000 cases with 71,000 deaths; South America had 334,000 cases with 76,000 deaths; United States recorded 186,000 cases with 28,000 deaths; India reported 14,000 cases and 10,000 deaths; Japan had 39,000 cases; while China recorded 33,000 cases and 14,000 deaths (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). Although the national cancer registry estimates Cancer of the Prostate prevalence of 9.4% in Kenya (MPHS & MMS, 2011), the three East African countries (Kenya, Uganda and Tanzania) recorded a total of 3,391 incidences consisting of 1,087 cases in Kenya; 1,538 cases in Uganda and 766 cases in Tanzania and a mortality rate of 2,755 (Kenya: 881; Tanzania: 625 and Uganda: 1,249) (Ferlay *et al.*, 2011; Lozano *et al.*, 2012). In Sub-Saharan Africa, Cancer of the Prostate reports have been hospital based and as such very few studies have been conducted on the indigenous populations. Initially, it was alleged that Africans in Africa rarely developed Cancer of the Prostate , due to short life expectancy, high fibre diet, low levels of fat and liver diseases (Angwafo *et al.*, 2003). However, other studies observed that prostrate cancer was fast increasing with age, more than any other malignancy and was poised to become a major public health problem in Sub-Saharan Africa, as life expectancy increases (Okobia, 2003). Additional studies in rural Cameroon (Angwafo *et al.*, 2003) showed that 3 out of 34 enrolled patients presented with Cancer of the Prostate while others (Ngugi & Byakika, 2007) found that among 108 hospital based cases at Kenyatta National Hospital, 26% had Cancer of the Prostate . Thus, contrary to earlier beliefs, Cancer of the Prostate is common and a major cause of morbidity and mortality in the countries of Africa. Other studies at this hospital also showed that a majority of Cancer of the Prostate patients undergo prostatectomy due to late presentation (Kalande, 2006), and this was attributed to poor referral system and a lack of adequate knowledge on Cancer of the Prostate in the Kenyan health care supply chain and management. Against an acknowledged poor information system by the compilers of the Nairobi Cancer Registry (KEMRI, 2006), Cancer of the Prostate is recorded as the second most common single-organ cancer at 9.4% after oesophagus at 10% in the year 2000, and

increasing to 11.4% and 12.0%, respectively in 2001. However, the report did not collect information on awareness, knowledge, perception and uptake of screening for Cancer of the Prostate (KEMRI, 2006).

2.8   Cancer of the Prostate problem in Nigeria

According to World Health Organization, (2004) as cited in Nnodimele, (2010), in Africa, Nigeria was rated first out of the nine countries with highest incidence of Cancer of the Prostate in 2004. This is suggestive of genetic predisposition and that it is estimated that a number of new cases per year was 6,236, and the number of deaths were 5,098 per year (WHO Impact on Nigeria, 2005). According to Nnodimele et.al, (2010), results of small Cancer of the Prostate screening initiative among 200 previously untested rural Nigerians reveals that the incidence of PSA (prostate specific antigen) levels was greater than or equals to 4ng/ml and was comparable to that of previously unscreened population with high incidence of Cancer of the Prostate in African American males. According to World Health Organization, (2004, it was revealed that among the top ten countries in the world with the Cancer of the Prostate , Nigeria was rated third in deaths rate from Cancer of the Prostate globally, and 11th position from breast cancer death in the year 2004. The total death from this disease was 13,700 after India with a total of figure 18,200 and United State with 35,300 deaths (Nnodimele et.al, 2010).

Cancer of the Prostate is the most common cancer in Nigerian males having overtaken liver cancer, it accounts for 6.1-19.5% of all cancers and the incidence is increasing (Abdulkareem, 2009). Various data from most parts of the country revealed that it is the most common cancer in all states in Nigeria except in Calabar state where a very high figure was recorded for Cancer of the Prostate as the most common accounting for 34.7% of all cancers (Abdulkareem, 2009). The increase incidence has been attributed to introduction of PSA screening test which enable early diagnosis of cancer cases. Compared to African-American men, Nigerian men are 10 times more likely to have Cancer of the Prostate and 3.5 times more likely to die from it (Abdulkareem, 2009).

Comparing indigenous and immigrant Nigerian men's diet, alcohol consumption, tobacco use and physical activities were enough differences to provoke deeper search for

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the high incidence of Cancer of the Prostate in Nigeria (Kumar, Yu D, Akinremi & Odedina, 2009). According to Ejike & Ezeanyiwa, (2009), suggested that lifestyle changes in Nigerian men leading to westernized diet may lead to increase in incidence of chronic diseases like cancer. Age above 40years, positive family history, high fat diet and high serum androgens levels are also attributed to the high incidence (Abdulkareem, 2009).

In Nigeria, like other developing countries in Sub-Sahara Africa, there is no national cancer mortality database or active screening program which has pose difficulties in determining the true burden of Cancer of the Prostate (Albertsen, 2010). Cancer of the Prostate in Nigeria had a 45.3-fold increase reported in individuals between the age groups of 30-44 and 45-50 for age-specific deaths for 2005 (Mathers, Lopex & Murray, 2006). Various Series of studies done in Nigeria revealed that with high prevalence of Cancer of the Prostate , most cases are diagnosed late, patients are less likely to receive curative treatment and most common treatment are androgen deprivation (Nwofor & Oranusi, 2004).

According to Akang, Aligbe & Olisa, (1996), in Benin-City, Nigeria, prostatic tumors accounted for 10.2% of all surgical specimens. The research was done from specimen collected from male patients in the Department of Anatomic Pathology of the University of Benin Teaching Hospital, Nigeria between 1973 and 1990. The findings revealed that nodular prostatic hyperplasia accounted for 83% of the cases and the peak age incidence was in the 60th year of life. Prostatic cancer occurred in the remaining 17% of the cases and the peak age incidence for occurrence was in the 60th year of life (Akang, Aligbe & Olisa, 1996). Malignant neoplasms most common in Benin-City is adenocarcinomas out of which 64% were-well differentiated, 27% moderately and 9% poorly-differentiated and 61% of the adenocarcinomas were classified as cases of incidental carcinoma of the prostate (Akang, Aligbe & Olisa, 1996).

Cancer of the Prostate research is growing having many aspect and problems to be addressed (Akinremi, Ogo & Olutunde, 2011). In Nigerians, the clinical Cancer of the Prostate rate may be much higher compared to African Americans. According to World Health Organization, (2004) as cited in Nnodimele et.al, (2010), in Africa, Nigeria was rated first out of the nine countries with highest incidence of Cancer of the Prostate in

2004. According to World Health Organization, (2004) as cited in Nnodimele, (2010), it was revealed that among the top ten countries in the world with the Cancer of the Prostate, Nigeria was rated third in deaths rate from Cancer of the Prostate globally, and 11th position from breast cancer death in the year 2004. The total death from this disease was 13,700 after India with a total of figure 18,200 and United State with 35,300 deaths (Nnodimele et.al, 2010).

Environmental and genetic factors have also been identified as the major reason for the geographic differences in incidence. Age above 40years, positive family history, high fat diet and high serum androgens levels are also attributed to the high incidence of Cancer of the Prostate (Abdulkareem, 2009). In Nigeria, like other developing countries in Sub-Sahara Africa, there is no national cancer mortality database or active screening program and this has pose difficulties in determining the true burden of Cancer of the Prostate (Albertsen, 2010). Cancer of the Prostate in Nigeria had a 45.3-fold increase reported in individuals between the age groups of 30-44 and 45-50 for age-specific deaths for 2005 (Mathers, Lopex & Murray, 2006). Various Series of studies done in Nigeria revealed that with high prevalence of Cancer of the Prostate , most cases are diagnosed late, patients are less likely to receive curative treatment and most common treatment are androgen deprivation (Nwofor & Oranusi, 2004).

2.9   Risk and predisposing factors of Cancer of the Prostate

The specific causes of Cancer of the Prostate   remain unknown (Hsing & Chokkalingam, 2006). Whilst the primary risk factors include age and family history, other factors associated with the cancer include hormonal imbalances, the living and working environment, lifestyle and diet, men's health seeking behaviour, sexually transmitted infections and exposure to certain medications (Grover & Martin, 2002). Cancer of the Prostate is uncommon in men younger than 40 years, but becomes more common with advancing age (Ngugi & Magoha, 2007). However, most men are ignorant of their Cancer of the Prostate status.

(i)   Age

The lifetime risk of developing Cancer of the Prostate   for men is 1 in 6 (Ngugi & Magoha, 2007). In the United States, 96% of Cancer of the Prostate s occur in men aged

55 years and above (Steele, Miller, Maylahn, Uhler, & Baker, 2000). (Hsing, Tsao, & Devesa, 2000) observed that Cancer of the Prostate occurs in 30% of men at 50 years and in 90% at 90 years during autopsy. Moreover, autopsy studies among Chinese, German, Israeli, Jamaican, Swedish, and Ugandan men who died from other causes indicated that Cancer of the Prostate was present in 30% of men aged 50-59 years old, and 8% in men of age 70-79 years old (Steele *et al.*, 2000).

Previous Cancer of the Prostate histological studies following prostatectomy and ultrasound guided needle biopsy by (Ngugi & Byakika, 2007)) involving 108patients aged 48-83 years at the Kenyatta national hospital, the Nairobi hospital and Upper Hill medical centre illustrated that 76% of the patients had prostate hyperplasia and 26% presented with Cancer of the Prostate . These findings suggest that Cancer of the Prostate is common in men above 40 years of age in Kenya.

(ii) Genetics and heredity

Previous studies showed that Cancer of the Prostate was frequent in men with first degree members suffering the disease (Zeegers, Jellema, & Ostrer, 2003). Additional studies by (Parchment, 2004)) showed that Cancer of the Prostate morbidity and mortality was common in black men (African Americans and Caribean males) in the eastern coast of America. The study also showed that black men were routinely diagnosed with later stages of CP and had reduced survival rates (Parchment, 2004). Recent worldwide studies evaluating the characteristics of CP across four populations involving men from the USA (European Americans, African Americans), Senegal and India illustrated that men in the developing countries (Senegal and India) present with more advanced disease compared to men from the developed world (Zeigler-Johnson *et al.*, 2008). Thus, it appears that familial relationship and black ethnicity are important genetic determinants of Cancer of the Prostate in the world. However, it is not known whether familial connection and ethnic backgrounds govern development of Cancer of the Prostate among Kenyan men.

(iii) Hormonal imbalances

Studies among 13 symptomatic testosterone deficient men with untreated Cancer of the Prostate on testosterone therapy showed that increased Cancer of the Prostate growth

occurred at low androgen concentrations (Morgentaler, Rhoden, Guay, & Traish, 2010), suggesting that androgens are important hormonal determinants of CP development.

(iv) Environmental factors

Increase exposure to heavy metals such as cadmium from industries and cigarette smoking appears to increase the risk of Cancer of the Prostate . Previous studies among 295 men aged 50 and above years showed associations between elevated levels of PSA and levels of cadmium in the blood and urine (Wu, Pu, Wu, Yang, & Chen, 2011), suggesting that increased exposure to cadmium increases the risk of developing Cancer of the Prostate . Dioxin (chemically known as 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, TCDD) was extensively used during the Vietnam war as a component of herbicides. Recent studies by (Shah *et al.*, 2009) among patients with agent orange exposure showed that this agent was associated with the development of a more aggressive Cancer of the Prostate . Although compounds related to dioxin are still being used today in herbicides, it is not known whether this exposure increases the risk of Cancer of the Prostate .

(v) Lifestyle and diet

A number of studies have identified important effects of nutrition in modulating protection and outcomes of Cancer of the Prostate . For instance, tomatoe lycopene, carotenoids, cruciferous vegetables, vitamin E, selenium, marine fish, omega-3 fatty acids, soya beans, isoflavones and polyphenols have been associated with protection while dairy products, calcium, zinc, saturated fats, grilled meats, and heterocyclic amines appear to increase the risk of Cancer of the Prostate (Grover & Martin, 2002). Additional studies indicate that plant-based diets and fish are associated with a reduced risk of developing Cancer of the Prostate (Chan, Gann, & Giovannucci, 2005). However, it is not known whether diet and lifestyle affect development of Cancer of the Prostate in Kenya.

2.10 Clinical features of Cancer of the Prostate

Prostate is a walnut sized gland which is part of the male reproductive system. It is located beneath the urinary bladder and in front of the rectum. The function of the prostate is to make fluid which nourishes and protects sperm cells in the semen. The activity and growth of the prostate is regulated by a hormone called androgen (testosterone) produced by the testicles (Prostate, 2012)

Many men who are diagnosed with Cancer of the Prostate are asymptomatic. However symptoms include urinary problems, blood in urine, pain in the hips, groin, pelvis, spine, and difficulty urinating and when ejaculating "(Cancer of the Prostate Prevention and Early Detection Cancer of the Prostate risk factors)". However, in a study conducted by reviewing other CPa studies on clinical features of suspected Cancer of the Prostate in primary care, it was reported that although urinary tract symptoms are one of the predictors for CPa they were not highly predictive. Instead, a biochemical test such as PSA testing or DRE provide better indication of the disease (Young et al., 2015).

In a study conducted on prostate volume and prostate adverse features, Cancer of the Prostate size and location were said to be of importance in diagnosis. Cancer of the Prostate s located in small glands are more aggressive than those located within larger glands (Briganti et al., 2007). Detection and treatment are very important when it comes to prostate volume.

2.11 Awareness, knowledge and perceptions on Cancer of the Prostate and uptake of screening

Previous studies in United States indicated that patterns of change for all screening modalities for cancer differed by age, gender, racial and ethnic background, but prevalence of use within recommended time intervals, was consistently lower among groups with less education and hence lower knowledge levels (Breen, Wagener, Brown, Davis, & Ballard-Barbash, 2001). In a similar study within the United States, exposure to Cancer of the Prostate information significantly predicted screening participation (Nivens, Herman, Pweinrich, & Weinrich, 2001).

Although older Nigerian men had high awareness rates on Cancer of the Prostate , their low knowledge of the aetiology, treatment, and prevention; perception on the risk of developing the disease and uptake of screening was low (Oladimeji *et al.*, 2010). However, even though knowledge and risk perception of Cancer of the Prostate were low, most of this men were willing to be screened for the disease (Oladimeji *et al.*, 2010). However, other studies (Ajape *et al.*, 2009) among a native urban Nigerian population (with less than average education) showed that a large proportion of the men were unaware of Cancer of the Prostate including screening for the disease using the PSA

method. Recent studies among Indian patients also showed that most men were unaware of the treatment options and their outcomes (Xu, Neale, Dailey, Eggly, & Schwartz, 2012). Accordingly, promoting dissemination of information on Cancer of the Prostate can improve perceptions on the disease, leading to enhanced uptake of screening for early detection.

2.12   Health seeking behaviour

The health-seeking behaviour of a people determines their personal health practices and seeking of medication when sick as well as the health of other family members. Although men, as family heads, determine decisions regarding their health and that of the households (UN, 2011), their participation in the public health sector which is often lacking, can be improved through men's clinics, and merging health services such as HIV counseling and testing with screening and treatment for prostate or testicular cancer (Crum, Spencer, & Amling, 2004). Similar studies among black American men showed that worsening urinary symptoms and accompanying bother, were associated withhealth care seeking behaviour (Sarma, Wallner, Jacobsen, Dunn, & Wei, 2008). Taken together, these studies suggest that enhanced health information, participation in health decisions and disease manifestations promote men's health seeking behaviour.

2.13   Sexually transmitted infections

A number of sexually transmitted infections have been associated with an increased risk of Cancer of the Prostate . For instance, studies by (Olusoga, Adedapo, Okafor, & Daini, 2007)) at the Nigerian university college hospital, Ibadan showed associations between syphilis and high PSA levels. Other studies by (Stark *et al.*, 2009)) indicated associations between *Trichomonas vaginalis* infection and increased risk of Cancer of the Prostate , advanced disease (Stage 4) and death due to Cancer of the Prostate . Additional studies also showed that men with multiple sexual partners had an increased risk of Cancer of the Prostate (Rosenblatt, Wicklund, & Stanford, 2001). Although no causal relationship has been established between sexually transmitted infections and Cancer of the Prostate , it is possible that sexually transmitted infections and having multiple sexual partners that are frequently observed in sexually active men in the country may be contributing to the increasing Cancer of the Prostate problem in Nigeria.

2.14 Risk factors, prevention and treatment modalities

The elements of the approach to controlling Cancer of the Prostate are similar to that of other non-communicable diseases (NCDs) which include prevention, detection, diagnosis, treatments and rehabilitation ("NCDs _Epid_Namibia-2015," n.d.). Living a healthy lifestyle such as avoiding smoking, exercising regularly and weight control offer opportunities for reducing the risk of developing Cancer of the Prostate (Cuzick et al., 2014)

Early detection comprises early diagnosis in symptomatic population and screening in asymptomatic population, for at risk individuals (Of, Health, Of, & Services, 2016). Increasing awareness of the signs and symptoms of cancer contributes to detection of the disease in less advanced stages (knowledge acquisition) and insight into the usefulness of participation in screening activities for early diagnosis. This will add to timely detection of the disease and efficient management that can save lives. Early detection can then lead to careful assessment of clinical signs and symptoms, testing for PSA and assessment for DREs so that the choice of treatment: drug therapy, surgery, radiation, vasectomy or surveillance can be initiated.

2.15 Diagnosis, detection and screening of Cancer of the Prostate

Although several methods are available for diagnosis of Cancer of the Prostate , biopsy removal and microscopic examination is the only confirmatory method (Javali *et al.*, 2013). However, prior to a biopsy, several other tools are used to determine the condition of the prostate and the urinary tract. For instance, digital rectal examination is used for detecting prostate abnormalities. Cystoscopy is used for examining the bladder using a thin, flexible camera tube inserted down the urethra and trans-rectal ultra-sonography creates a picture of the prostate using sound waves from a probe in the rectum (Marks, 2009).

2.16 Clinical diagnosis

History taking and clinical examination of patients can aid in suspecting for Cancer of the Prostate . This clinical process is usually based on the presence of signs and

symptoms suggestive of a diseased prostate such as prostatitis, an infection, usually caused by bacteria; benign prostatic hyperplasia, an enlarged prostate, which may cause dribbling after urination or frequent urination, especially at night. The main method of prostate examination include Direct Rectal Examination for genitourinary symptoms (Marks, 2009), and painful hematuria associated with abdominal pain, flank pain, suprapubic pain or dysuria (Marks, 2009).

2.17 Histological investigations

The most commonly used system of classifying the histologic characteristics of Cancer of the Prostate is the Gleason score, which is determined using the glandular architecture within the tumour. If cancer is suspected in the prostate gland, a biopsy is offered expediently. Previous studies in Kenya showed that most patients reporting with advanced Cancer of the Prostate presented with prostate hyperplasia (Ngugi & Byakika, 2007).

2.18 Laboratory diagnosis

There are a number of laboratory tests used in the diagnosis and confirmation of Cancer of the Prostate .

Prostate-specific antigen

PSA is a protein produced by the cells of the prostate gland. PSA is present in small quantities in the serum of men with healthy prostates, but is often elevated in the presence of Cancer of the Prostate and in other prostate disorders. Rising levels of PSA over time are associated with both localized and metastatic Cancer of the Prostate (Andriole *et al.*, 2009; Roobol *et al.*, 2009).

Cancer of the Prostate antigen-3

Cancer of the Prostate   antigen (CPA)-3 is a non-invasive method of early prostate tumour detection through a molecular test that detects the presence of cell-associated CPA-3 *mRNA* in fluid massaged from the prostate and first-void urine (Zhou *et al.*, 2011). Studies indicating associations between higher CPA-3 scores and aggressive disease (Auprich *et al.*, 2011) suggest that this technique may be valuable in the staging of the disease and monitoring treatment outcomes.

2.19   Homeobox protein engrailed-2

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

2.20   Importance of early screening

In developed countries, screening for PSA has led to early detection and management of the disease. However, in developing countries particularly in Africa, routine screening has remained low, leading to reduced detection rates, poor management and increased mortality from the disease (Ajape *et al.*, 2009). Recent studies in Ghana among 196 men visiting the outpatient Department of Komfo Anokye Teaching Hospital showed that 83.6% had elevated PSA levels and 95.5% had Cancer of the Prostate (Rebbeck *et al.*, 2013). Additional studies on 156 Nigerian men showed a lack of awareness on Cancer of the Prostate , Cancer of the Prostate screening and serum PSA test for screening (Ajape *et al.*, 2009). Studies in Kenya on 108 patients established associationsbetween high levels of PSA and increased rates of Cancer of the Prostate in biopsy samples (Ngugi & Byakika, 2007). In addition, (Magoha & Ngumi, 2000)) suggested that early diagnosis is pre-requisite for effective therapy of Cancer of the Prostate . Moreover, the present screening techniques including DRE, PSA, transrectal ultrasound (TRUS) and random ultrasonically guided multiple prostatic biopsies can detect some potentially curable asymptomatic localized cancers (Zeigler-Johnson *et al.*, 2008). A review by (Ngugi & Magoha, 2007)) also indicated that increased detection of early Cancer of the Prostate is due to widespread use of PSA screening in the world.

2.21   Cancer of the Prostate KAP studies in some African countries

The low levels of KAP among African populations have been documented in Nigeria, Uganda, and Ghana. In Nigeria, low levels of KAP were observed among men in a rural community in the Inkene local government district (Eo et al., 2014). A similar finding was reported in a qualitative cross-sectional study conducted in Ibadan, South West Nigeria. The study recommended for the creation of community awareness programs on prostatic diseases in the community (Atulomah et al., 2010).

A hospital based study in Nigeria however, reported a contrasting result. In this study 74.1% of the men were reported to be aware of the existence of Cancer of the Prostate except that their participation in screening activities was low. A similar hospital based study conducted in Kenya, Nairobi indicated a low perception of men regarding cancer of the prostate (Paul, 2014).

In Uganda, the level of awareness about Cancer of the Prostate among men was also low, as was their participation in screening activities (Atulomah et al., 2010); (Nakandi et al., 2013). The study revealed that 59.4% of the men had heard about Cancer of the Prostate and as few as 9% knew about serum prostate specific antigen (PSA) testing. Consequently, only 3.5% had ever undergone a serum PSA test (Ellison et al., 2014). A study conducted in Ghana reported CPa awareness level of 54.1% among participants (Binka et al., 2015). These results cumulatively indicate that in Africa, KAP with regards to CPa is low and requires strategies for improvement. There is a clear need for health promotion interventions designed to increase awareness and improve CPa practice. To prepare men to make a decision to be tested, IEC materials should be provided earlier to facilitate the diagnosis of CPa (Brooks, Wolf, Smith, Dash, & Guessous, 2010). Particularly, men in the risk age groups must be targeted to receive information so they can be evaluated early for detection and management. On the other hand, younger men under the age of 50 and men at average risk should receive this information early so that detection rates improve, to save lives.

2.22 Cancer of the Prostate KAP in Caribbean, North and South American men

A study conducted in Western Jamaica to asses KAP among men aged 40 - 93 years from two different Parishes namely Trelawney, St James as well as among manual labourers showed variable Cancer of the Prostate screening results. The men from Trelawney parish were 10.5 times more likely not to be screened compared to men from St James. Manual labourers were 5.5 times less likely to have been screened than non-manual labourers. Men who had not been advised to have Cancer of the Prostate screening were 92% less likely to be screened than those advised and men who were not sure of how frequently screening should be conducted were 6.1 times more likely not to be screened compared to those who knew that screening should be conducted annually (Anderson, Wallace, Aung, & Jolly, 2015).

Men who visited healthcare providers only when they felt sick were 6.4 times more likely not to be screened compared to men who visited annually (Anderson et al., 2015). Based on the results from this study, the researchers suggested that Cancer of the Prostate screening interventions be instituted and promoted in communities to make it available to men with less economic resources and those who do not routinely visit a physician or health facility (Anderson et al., 2015). Similar results were observed among rural male health workers in another study in Jamaica where 72.2% of men had heard about the screening procedure for Cancer of the Prostate , with only 27.1% having gone through prostate examination.

Furthermore, a review of the cancer registry in countries in the Caribbean showed that the high mortality rates observed among Caribbean-born patients may be partly attributed to later diagnosis. Interventions focused on KAPs of Cancer of the Prostate could potentially reduce mortality in this population (Mutetwa et al., 2010).

The low uptake of screening behaviours was evident in a study conducted in the US among Primary Care Physicians (CPPs) to examine the behaviour of men and physicians regarding Cancer of the Prostate screening. The results indicated that PSA screening was more likely among non-Hispanic blacks. CPPs in multi-specialty group practices were more likely to remain neutral or discouraged PSA testing compared to CPPs in solo practices (Hall et al., 2011)**.**

In addition, a qualitative study confirmed that screening could save men's lives if women could get involved. The study findings also emphasized health education efforts as a means of helping community members understand health issues, screening options and how to make informed screening decisions (Hunter, Vines, & Carlisle, 2015); (Obana & O'Lawrence, 2015). Information based on another study regarding KAPs of Cancer of the Prostate among American physicians suggests similar results as the Hall et al. (2011) study. The results show a low uptake of KAPs on Cancer of the Prostate among the participants. Participants correctly identified Cancer of the Prostate risk factors but were less knowledgeable about Cancer of the Prostate screening tests and overall Cancer of the Prostate risk. Men over the age of 50 were not screened (Tasian et al., 2012). In a study involving African Americans, only 13% of the participants reported receiving a comprehensive explanation about Cancer of the Prostate . The study also reported a low

level of knowledge regarding Cancer of the Prostate among the respondents (Davis et al., 2010).

In the non-Hispanic white ethnic groups, it was reported that men were less likely to be tested for Cancer of the Prostate than African-Americans, although the latter group presented with more malignancy which raised concerns about missed prevention opportunities. African-Americans with high PSA results had the shortest time until follow-up, reflecting awareness of the threat of Cancer of the Prostate for African-Americans (Liang, Du, Thompson, & Turner, 2012).

Another study conducted in Brazil showed that 63% of men had knowledge about Cancer of the Prostate . A reasonable number of the participants (40.6%) had positive attitudes towards screening while 28.1% had proper practices (Paiva, Catarina, & Harter, 2010). Regarding the attitude of the men on their choice of not doing a digital rectal examination, 20.6% indicated comfort level; 9.4% stated the gender of the health practitioner and 5.3% attributed it to fear (Bourne, 2010).

2.23 Cancer of the Prostate Screening

Detecting Cancer of the Prostate early is crucial to longer survival rates and significant reduction in mortality rates.(Weinrich, Boyd, Akinson, Wu and Modlin, 2012) Although Cancer of the Prostate screening is not without its controversies, it is currently the only method to control the disease through early detection. Recent data available show an increase in Cancer of the Prostate screening rates since 1995 in the U.S, (Farwell, 2007) suggesting that more attention has been paid to either taking the prostate antigen (PSA) test and/or undergoing digital rectal examination (DRE).

The PSA test and the DRE are the two primary modes of detecting and screening for Cancer of the Prostate . DRE is the oldest screening test and it requires that a physician insert an examining finger into the rectum to feel for lumps or irregularities, the PSA test is a blood test that can easily detect a protein made by the prostate cells. A high concentration of this protein indicates the presence of Cancer of the Prostate (Tourville and Nguyen, 2013) Both PSA and DRE have a moderate sensitivity and high false positive rates. The DRE technique has been shown to have a moderate sensitivity of 55 – 68 percent of detecting Cancer of the Prostate in asymptomatic men but the

technique results in a high number of false positive results and has a low specificity (Catalona, Richie and Ahmann, 2005)

A meta-analysis study estimated an overall positive predictive value of the DRE as 28 percent, the sensitivity of the DRE is limited partly because the physician cannot palpate the posterior of the prostate gland, as well as the fact that palpation cannot detect the early stage of the tumors (Hoogendam, Buntinx, and de Vet, 2000). The PSA test has been reported to be more sensitive than the DRE, with sensitivity values as high as 80percent, but has a comparable positive predictive value ranging from 25 to 64 percent.

Both DRE and PSA screening tests remain controversial for several reasons. First, each test is more likely to detect cancers of unknown clinical significance. It is difficult to distinguish which tumors will be life-threatening and which will remain in a latent stage, making it difficult to comprehend the natural history of Cancer of the Prostate *(Preventive Services Task Force [USPTF, 1994).* Due to the slow growth of Cancer of the Prostate , many men may die of other causes before Cancer of the Prostate becomes evident clinically or life threatening and secondly, treatment can result in a range of potentially fatal complications and unpleasant side effects including bowel injury, impotence, and incontinence (Feightner, 2000). Currently, there is no consensus on the use of screening tests to detect Cancer of the Prostate . The recent guideline for testing by the American Cancer Society (ACS) suggests that both tests (DRE and PSA) be offered generally to men after the age of fifty years. Furthermore, ACS suggests that black men or men with a first-degree relative who has been diagnosed with Cancer of the Prostate at the age of forty-five years be offered screening (Tourville and Nguyen, 2013).   Additionally, the American Urological Association recommends yearly screening after age fifty for men in the general population and after age forty for men a high risk of Cancer of the Prostate (Nieder and Ostrer, 2003)

2.24 Cancer of the Prostate Screening in Black Men

The high mortality rates from Cancer of the Prostate experienced by black men continue to be a great public health challenge. While there is limited documentation in the literature on high-risk male patients and their participation in Cancer of the Prostate screening, some authors have suggested that less than 10 percent of black men

participate in Cancer of the Prostate screening in the U.S (Weinrich, 2000). Lower Cancer of the Prostate screening rates have been attributed to the wide disparity in deaths from Cancer of the Prostate seen in black men, however, black men are less likely than white men to participate in annual Cancer of the Prostate screening. In addition, black men with a positive family history of Cancer of the Prostate are more likely to have Cancer of the Prostate than those without a family history. (Gilligan, 2005, Odedina, Campbell, LaRose-Pierre, Scrivens and Hill, 2008)

2.25 Potential Benefits of Screening

Epidemiological data have suggested an association between decline in Cancer of the Prostate mortality and PSA testing, though these findings are conflicting. An analysis of data from the SEER registry showed a steady decline in age-adjusted mortality rates for Cancer of the Prostate since 1994; a decree of 10.4 deaths per 100,000 men (Bartsch, Horninger, Klocker, 2008 and Concato, 2006). The 45 – 70 percent decline in Cancer of the Prostate mortality rates have been attributable to PSA screening and this decline has been estimated by mathematical models.(Etzioni, Tsodikov , Mariotto , 2008) Recent results of randomized trials conducted in seven European centers showed that screening resulted in a moderate reduction in Cancer of the Prostate mortality rates (Andriole, Crawford, Grubb, Schröder, Hugosson and Roobol, 2009) A separate randomized screening trial conducted in Sweden showed a greater reduction in mortality among those who screened for Cancer of the Prostate than in those who did not screen. The participants in the study were men aged between 50 to 64 years and were followed for a median of 14 years (Hugosson and Carlsson, 2010) . Findings from this study correspond to a number needed to screen of 293 and a number needed to diagnose of 12 to prevent one death from Cancer of the Prostate . Furthermore, studies have shown that screening for Cancer of the Prostate detects cancers 5 to 10 years before they can be detected clinically

2.26 Barriers to Cancer of the Prostate Screening

Several studies have identified barriers to Cancer of the Prostate screening; they include: embarrassment, lack of cultural sensitivity of healthcare professionals (Blocker and Romocki, 2006) Thomas reported Gwede, (2006),that, trust, cost, lack of knowledge, fatalism, sexual and urinary complications of surgery, lack of transportation and concerns about the accuracy of the test results. Discomfort of the DRE has also been reported to be a barrier to Cancer of the Prostate screening.

Parchment surveyed a convenience sample of 100 black and Caribbean men aged 37 to 89 years from three churches in South Miami Dade counties. Eighty percent of the men surveyed stated that a dislike of prostate examinations and sexual and urinary complications of Cancer of the Prostate prevented them from regular screenings. On the contrary, Gelfand, Parzuchowdki, Cort & Powell surveyed 613 black men between the ages of 40 and 70 on their willingness to undergo DREs (Gelfland and Powell 1995). The findings indicated that negative beliefs toward DRE were not a barrier to participating in Cancer of the Prostate screenings. Another study conducted in 2003, which included black and Caucasian men, examined factors that predicted screening practices of Department of Defense (DoD) health care beneficiaries (Boyles, Moore and Edwards, 2003). The findings indicated that participants in the study had higher levels of self-efficacy and perceived benefits of Cancer of the Prostate screening. There was also a significant difference in screening practices between black and Caucasian 24 men; black men were less likely to screen regularly for Cancer of the Prostate . Similar findings were identified by Weinrich, Reynold, Tingen & Starr (2000) who designed a cohort study to measure barriers to Cancer of the Prostate screening. Barriers identified in the study included: embarrassment, mistrust, fear of post-operative complications, access to health care, limited knowledge about the disease and abnormal test results.

In a qualitative study by Jones, Steeves, and Williams, (2010) 17 black men were interviewed to determine whether or not they intend to screen for Cancer of the Prostate . The following themes emerged from the study: physician trust; family and friend input; and familial history of Cancer of the Prostate . These were all regarded as important factors that determined whether to screen for Cancer of the Prostate or not. Barriers to screening were health literacy, limited knowledge, and fear. Carter, Tippett, Anderson &

Tameru, (2010) conducted a study to evaluate the impact of Cancer of the Prostate education on screening rates among 239 black men in rural Black Belt counties in Alabama. The main barrier to screening participation was fear of cancer death. Fifty percent of the 239 men reported participating in Cancer of the Prostate screening, with only 33 percent participating within the previous 12 months. Other themes identified as barriers to Cancer of the Prostate screening included: lack of communication with others concerning their health and the fear of death associated with Cancer of the Prostate .

Using several focus groups, a 2001 study assessed psychosocial factors that influence screening behaviors with black men and women (Jernigan, Trauth, Neal-Ferguson, and Carter-Ulrich, 2001). The sample size consisted of 19 males and 26 females. Findings from this study indicated that increasing age was a motivating factor to screen for cancers. Men had a higher likelihood of expressing distrust of the health care system, perceiving cancer as a death sentence, and attributing the presence of symptoms as an initial reason for screening for cancer. Compared to women, men were also less likely to initiate screening for cancers on their own and depended on close females for encouragement. These findings support the impact of beliefs and customs on decision-making of black men to partake in cancer screening.

In a recent qualitative study with 20 men between the ages of 40 and older, Conde et al., (2011) reported similar findings. Results suggested that the following factors have an impact on participating in Cancer of the Prostate screening: reluctance to seek medical care, fear of cancer diagnosis, financial issues, time constraints, lack of awareness of the need to screen and embarrassment. Both patient and physician barriers to Cancer of the

Prostate screening were studied from the physicians' perspective (Guerra, Jacobs, Holmes and Shea, 2007). This in-depth qualitative study was conducted in 18 purposively-sampled primary care physicians. Barriers of Cancer of the Prostate screening were identified using both interviews and patient charts in a bid to aid physician recall. Patient comorbidities, prior refusal of care and limited education/health literacy were identified as patient barriers. However, forgetfulness, lack of time and negative attitude toward Cancer of the Prostate screening were identified as physician barriers. Other barriers included lack of regular physician and a reduced appreciation for the value of preventative care, due to tradition and culture (Oliver and Grindel, 2006)

Potential side effects of the PSA screening include regular medical visits, adverse effects of prostate biopies, anxiety, and overdiagnosis which is the identification of prostate cancer that may never have caused symptoms in an individual's lifestyle, leading to treatment that are not necessary . Another side effect is the uncertainty that surrounds which cases of the cancer of the prostate requires treatment and whether earlier detection could leads to better improved quality of life (Agency for Healthcare Research and Quality, 2018)

2.27 AGE

Age is a known risk factor for Cancer of the Prostate as well as for other hereditary cancers, It has also been found to be positively correlated with intention to screen for Cancer of the Prostate .(Myers, Hyslop, Jennings-Dozier, 2000). For example, in a study of at-risk relatives for Cancer of the Prostate , intention to undergo screening positively correlated with younger age and perceived risk. This inverse relationship between age and intention could be potentially explained by older men being more skeptical due to cultural factors or fatalism associated with developing Cancer of the Prostate (Bloom, Stewart, Oakley and Girvan, 2006). In addition, older patients have been shown to prefer to leave their medical decisions to their physicians and as such play a less active role in medical decision-making.168 Findings from a focus group study of men's interest in screening for Cancer of the Prostate found that age was positively correlated with screening intentions (Doukas, Fetters, Coyne, McCullough, 2000).

According to the American Cancer Society the risk of developing Cancer of the Prostate for African men with no family history of diseases begins at 40, while the risk for Caucasian males begins at 50. Studies have shown that Cancer of the Prostate is more aggressive in younger men and that these men who present with metastatic forms of the disease are likely to be black.(Lin , Porter , Montgomery, 2009) Assessing the association between age at diagnosis, treatment and survival outcomes in men diagnosed with Cancer of the Prostate was the basis of a study by Lin, Porter & Montgomery. The NCI SEER database was used to identify men who were diagnosed with Cancer of the Prostate between 1988 and 2003, and who were aged between 35 – 74 years. Younger men (aged 35 – 44) were found to be at the highest risk of all cause and cancer-specific death and were most likely to present with aggressive forms of the cancer.

2.28   Environmental factors

Approximately 28.8 percent of Americans live in rural communities, with 34 states having more than half their populations living in rural areas or in towns under a population of 50,000 (Vernon, Gritz, Peterson, 2000) Regardless of what indicator (per capita income, educational opportunities) is used, rural residents are usually less advantaged than their urban counterparts. Inhabitants of rural areas are often limited by geographical, economic and cultural barriers which in turn limits access to health care (NRHA, 2006).

Previous research has shown that cancer tends to be diagnosed at more advanced stages among rural residents, indicating that this population is less likely to receive timely cancer screening tests.(Monroe, Ricketts and Savitz 1995) Indeed, there are differences in cancer staging among rural populations. In a study by Higginbotham, Moulder & Currier, blacks residing in rural areas presented cancers at late stages. Similar findings were found in a study by Liff, Chow & Greenberg (2000) who documented that rural dwellers were likely to have less access to,or utilization of, early cancer detection programs and quality medical care. It was suggested that factors such as geography and distance act as socioeconomic and cultural barriers that could eventually lead to wider health disparity gaps.

2.29   Knowledge of Cancer of the Prostate screening

Research examining Cancer of the Prostate knowledge among black men has shown a deficit of knowledge in this very high-risk group (Jones and Wenzel, 2005) This is not unexpected given the lack of agreement within the medical community about the benefits of screening, lack of trust of physicians and access to screening, these factors have been associated with the reluctance of black men to participate in cancer control and screening programs. Lack of uniform guidelines and the controversy surrounding Cancer of the Prostate screening has spurred researchers into exploring informed decision-making and Cancer of the Prostate education (Bryan, 2008) Weinrich et al, (2004) assessed Cancer of the Prostate knowledge among low-income men. The participants

were asked to respond to 12 questions regarding Cancer of the Prostate risk factors and possible signs of Cancer of the Prostate . Nearly 48 percent of the respondents could not correctly identify signs of Cancer of the Prostate and about 39 percent incorrectly identified any risk factor. A comparison of levels of Cancer of the Prostate knowledge between black men and Caucasian men was also studied by Demark-Wahnefried et al, (1995). The participants were selected from a sample of men participating in a nationwide Cancer of the Prostate awareness screening campaign. The study revealed that 68 percent of men reported their risk of Cancer of the Prostate as equal to that of other men. The same responses were recorded for both black men and Caucasian men.

Weinrich et al, (1998) attributed the lack of knowledge regarding Cancer of the Prostate screening to racial differences in incidence and mortality of Cancer of the Prostate . The findings from this study showed that only 14 percent of the black men showed a high level of knowledge about Cancer of the Prostate . The knowledge gap existing among black and Caucasian men has also been documented by Barber et al, (1998) Black men showed significantly lower levels of knowledge than Caucasian men. In addition, black men were less likely than Caucasian men to correctly distinguish race and family history as risk factors of Cancer of the Prostate .

Agho and Lewis (2001) assessed actual and perceived knowledge of Cancer of the Prostate in blacks. The aim of the study was to explore the association between age, income, and education on perceived and actual knowledge of Cancer of the Prostate . A secondary aim was to examine the correlation between knowledge of Cancer of the Prostate screening and participation in Cancer of the Prostate screening activities. The participants consisted of a nonrandom sample of 108 black men recruited from local churches, barbershops, and adult day care centers. 86.2 percent of the participants were below the age of 50 approximately 56 percent reported earning a yearly income lower than $40,000 and 39 percent had more than a high school education. Participants scored less than 70 percent on 15 of the 21 items. A statistically significant difference was found between younger respondents (those less than 40 years of age) and those who older than 40 years in terms of actual knowledge of Cancer of the Prostate (p=.047).

There was no difference in perceived knowledge of Cancer of the Prostate . Overall, actual knowledge of Cancer of the Prostate was negatively correlated with age,

income and education. A moderately strong positive correlation was observed between the use of Cancer of the Prostate screening services and actual knowledge of Cancer of the Prostate (r= 0.47, p < .001) as well as between the use of Cancer of the Prostate screening services and perceived knowledge of Cancer of the Prostate (r=0.55, p<0.001).

In contrast, a cross sectional study by Ashford et al (2001) did not identify a significant correlation between knowledge of Cancer of the Prostate risk factors and self-reported utilization of Cancer of the Prostate screening. This prevalence survey was conducted using two samples of black men (N=404), aged 50 – 74 years from clinics drawn from Harlem, New York City. In another study, Weinrich et al (2004) assessed the knowledge level of 81 low income Caucasian and black men aged between 40 and 70 years. The mean household income of the respondents ranged between $17,668 and $33,333. The findings revealed a correlation between total knowledge scores and income. Men who reported lower incomes had significantly lower knowledge scores than men with higher incomes. Similar findings were reported in another study where 900 African American men attending Cancer of the Prostate education seminars were surveyed (Wilkinson, 2003). The outcome measures were whether a 1-hour educational seminar could cause a change in awareness and knowledge of Cancer of the Prostate . The results from this study showed that Cancer of the Prostate awareness and knowledge improved after the 1-hour seminar.

Taylor, Shelby, Kerner, Redd & Lynch(2002) conducted telephone interviews with a group of 136 men to determine the impact of screening on psychological distress and their knowledge of Cancer of the Prostate   screening. About 34 percent of the participants were black, 71.3 percent were married, and more than half of the participants reported having a college degree or more education. Participants were administered an 11-item knowledge questionnaire prior to screening. The items on the questionnaires were aimed at assessing how participants rated the degree to which risk factors such as older age, black descent and a family history of Cancer of the Prostate were related to developing Cancer of the Prostate . The questionnaire was re-administered at the end of each screening. Results from this study showed that while men had an understanding of the risk factors for Cancer of the Prostate (M = 3.3, SD = 0.64), knowledge levels did not increase significantly after Cancer of the Prostate

screening and psychological distress associated with Cancer of the Prostate screening decreased upon receipt of a negative test result.

The knowledge, attitudes, and screening practices of older men (≥ 50 years) regarding Cancer of the Prostate were assessed in a study conducted in 2009. The following items were measured: self-perceived risk of developing Cancer of the Prostate , knowledge of existing screening test for Cancer of the Prostate , whether participants had received a physician's recommendation to be screened, and current screening practices of the men. The survey consisted of a random-digit-dialed monthly statewide telephone survey which employed the use of a complex multistage design. Of the 721 black men surveyed, 42 percent perceived themselves to have a "medium to low" risk, and 18 percent as having "no" risk, while about 31 percent responded as "don't know/not sure." Also, men aged 70 years and older, with less education and who earned less than $25000 yearly were significantly more likely to perceive themselves as "medium to low" risk.

Finally, lower knowledge levels of Cancer of the Prostate screening were found in men who indicated that they were "medium to low" risk. Findings such as these are indicative of the work that still needs to be done among black males, especially those with lower incomes, to make them aware of their risk and the importance of Cancer of the Prostate screening, when necessary.

Magnus (1999), conducted a study in 528 multiethnic black men in the metropolitan area of Miami and Fort Lauderdale, FL. to assess Cancer of the Prostate knowledge. The men included in the study were recruited via barbershops as they waited to be seen by their barbers. Approximately 19.1 percent of respondents answered 80 percent of questions correctly, and 7.1 percent answered all the questions correctly. While there was no significant difference in knowledge levels among the ethnic groups, the findings from the study show that certain groups will benefit from more information regarding the benefits and risk of Cancer of the Prostate prevention.

A correlation design to test the impact of Cancer of the Prostate knowledge on cancer screening was the main focus of a study by Weinrich et al (2000). The sample used in the study was 312 men between the ages of 40 and 70 years, who had never screened for Cancer of the Prostate . Cancer of the Prostate knowledge was measured with a questionnaire prior to a community-based educational program. After the

intervention, men were given referrals to their primary physicians for a free Cancer of the Prostate screening. Men who had high knowledge scores were twice more likely to undergo free Cancer of the Prostate screening that than those with lower knowledge scores. The positive predictors of participation were ethnicity, income, urinary symptoms, and educational intervention. Using a North Carolina cancer registry to identify participants, 207 black and Caucasian men who were recently diagnosed with Cancer of the Prostate were enrolled in a study (Talcott, 2007). This study was designed to explore patient factors that account for some of the disparities seen in cancer outcomes. The findings showed that while African men in North Carolina were aware of their increased susceptibility to Cancer of the Prostate , they had less access to healthcare and report lower socioeconomic status compared to their Caucasian counterparts.

Most studies have consistently shown a low level of knowledge among black men regarding Cancer of the Prostate and Cancer of the Prostate screening (Weinrich and Seger, 2004). Majority of these studies focused on several knowledge areas such as: incidence, prevalence, risk factors, signs and symptoms, relative risk, anatomy and function of the prostate gland, screening and early detection options, treatment availability, and side effects associated with treatment. Regardless of the various methods used, a commonality exists between these studies of assessing Cancer of the Prostate knowledge in black men: black men are more likely than white men to be uninformed about Cancer of the Prostate . It is important to note, however, that while most of these studies assessed knowledge levels in men over 40 years of age, little is known about knowledge in younger black adult males.

Thus, findings from the literature suggest that income, age, positive family history, education, access to care may significantly affect an individual's knowledge about Cancer of the Prostate screening (Wilkinson, List , Sinner, Dai , Chodak, 2003). Knowledge of Cancer of the Prostate and Cancer of the Prostate screening has also been shown to play an important role in participation in screening practices.

2.30   Health seeking Behaviour among men

Men's health is an area of public health concern (Baker, 2002; European Commission, 2011; White, 2006), which prior to the year 2000 has been a relatively under-researched area (White, 2001; Baker, 2002; Courtenay, 2000b; Meryn & Jadad, 2001; Gough, 2006).

Over a decade ago, the British Medical Journal published a special issue on men's health which highlighted that although men were advantaged in certain areas such being paid higher salaries than women, that this was not reflected in their health status (Meryn & Jadad, 2001). Data consistently shows disparities in the health and health outcomes of men compared to women (European Commission, 2011; Meryn & Jadad, 2001; Courtenay, 2000b). Life expectancy in males is less than that of their female counterparts, for example, in England for the period 2009-2011, life expectancy at birth by gender was 78.9 and 82.9 for males and females respectively (ONS, 2013b). This pattern is replicated in almost all countries around the world, despite the higher socio-economic position held by many men across society (Gough & Robertson, 2010).

In Europe, morbidity and mortality data show that men are over-represented in statistics on cardiovascular disease (CVD) and non-gender specific cancers. Interestingly, these health inequalities are evident between men living in different countries, as well as in male populations living within the same country (European Commission, 2011).

Although male mortality and morbidity from some long-term conditions seen today are related to biology, what is apparent is that biological explanations alone cannot fully explain these statistics. A biological view overlooks the complex interplay of the wider determinants of health, which include socio-economic, cultural, psychological and behavioural factors (Courtenay, 2000b).

The health behaviours and beliefs of men have been implicated in the health differences between men and women. It is well documented that men are reticent about accessing healthcare services (White, 2001; Banks, 2001; Gough, 2013) and are less likely to visit their general practitioner (GP) when ill (ONS, 2011 and European Commission,2011), with the exception of in the very late years of life.

Evidence also suggests a tendency for men to present at the later stages of illness or when disease has reached the more critical stages (European Commission, 2011). In addition, when men do seek help they are less likely than women to present with concerns regarding mental health (Corney,1990). Besides the poor uptake of healthcare services, there is also evidence that men are more likely to engage in other health damaging behaviours, such as substance misuse, risk taking, and non-engagement with preventative care which can also be detrimental to health (Courtenay 2000b; European

Commission, 2011; Galdas et al, 2004). This in turn has resulted in a heightened interest to conduct research in the area of men's health. However, what remains a poorly understood area is why men engage in health damaging behaviours, which in the main appears to be culturally accepted and practiced as 'the norm' by many. Unfortunately, this view left unaddressed gives men the licence to disengage or maintain their disengagement (Gough, 2006). Interestingly, the European Social Survey findings reveal that traditional gender role ideals have somewhat shifted amongst the employed population. Amongst both men and women there has been a decline in viewing men as 'breadwinners' and women as 'homemakers'. A point to note is that a greater shift in attitudes was found amongst men (NatCen, 2012).

2.31 Screening and detection of Cancer of the Prostate

Cancer of the Prostate screening remains a controversial issue (American Urological Association, 2012). It is the only method recognized to control Cancer of the Prostate disease through early detection. Lots of evidence has shown that prostate specific antigen (PSA) screening can detect early stage Cancer of the Prostate (American Urological Association, 2012). Screening based on the serum marker PSA is the most cost-effective method for the detection of early disease (American Cancer Society, 2004). American Cancer Society, (2004), recommended that men at high risk, based on race and family history, should commence early screening with PSA blood test and digital rectal exam (DRE) at age 45 years. While American Urology Association, (2013), states that screening will be of great benefit in quality of life improvement and PSA screening should not be done for men below 40 years; routine screening for men between 40-54 years and men over 70 years or those with less than 10-15 years life expectancy, is also not recommended. But for men between 55-64 years, the decision should be individualized and based on weighing the benefits and potential harm of Cancer of the Prostate screening. These guidelines were approved base on the findings that screening pose lots of complications such as painful biopsies, bleeding from site of biopsy, infection, hematuria(blood in urine), dysuria, bone pain, and hematospermia (blood in sperm) which occur in 10-70% of patients (Journal of Urology, 2011). It was also discovered to be the cause of hospitalization in 6.9% of patients (American Urology Association, 2013).

Despite the controversies surrounding screening, it is been identified that the reduced mortality rates is attributed to screening, which will result in early detection and prompt treatment (Jemal, Murray, Ward, et.al, 2005 & Kenerson 2010). A recent prospective randomize trial from Canada suggest that Cancer of the Prostate mortality can be reduced widely through prostate specific antigen screening (American Cancer Society, 2012). Cancer of the Prostate screening may reveal results that may lead to recommendations for biopsy and other tests that can also help if biopsy is considered (American Cancer Society, 2004). The main aim of screening is to reduce possibility of developing the disease at asymptomatic stage as a method of early detection because of their various negative attitudes, poor knowledge and beliefs (Kenerson, 2010).

The major problem with early detection of Cancer of the Prostate prevention is lack of knowledge about screening and poor detection guidelines among medical professional group (Woods et.al, 2004). According to Clarke-Tasker & Wade, (2002) & Woods et.al, (2004), it was discovered by researchers that sexual dysfunction is a sensitive issue for black men, therefore discourages them from participation in Cancer of the Prostate screening and early detection strategies. Direct rectal examination (DRE) was identified as a major problem at it threatens men's sexuality (Woods et.al, 2004). Majority of their participants indicated fear of weak erection, impotence and insufficient strength for vaginal penetration as a major concern why men do not go for Cancer of the Prostate screening (Woods et.al, 2004). A goal of healthy people 2020 is to eliminate racial health disparities and reduce Cancer of the Prostate death rate to 21.2 per 100,000 males. To achieve this goals, innovative measures must be applied to overcome the perceived barriers that hinders early screening practices for Cancer of the Prostate , create mechanisms to partake, support and rein-enforce men to make healthy choices (Healthy people, 2010). Screening is a very big issue especially in black men as compared to women Woods et.al, (2004). Black men are less likely to seek health care and participate in preventive health-related activities such as screening/detection (Woods et.al, 2004).

Many research work done has revealed economic limitation, low level of education, poor access to health care facilities, lack of knowledge about studies, past negative experience, physicians attitude, cultural and religious beliefs/attitude as various negative factors preventing individual participation in Cancer of the Prostate (Steele, Miller,

Mayham et.al, (2000). Lack of knowledge about screening is been identified as a negative influence (Nnodimele et.al, 2010) and only 46.5% of their study participants indicated that they have heard about Cancer of the Prostate screening and 68.8% indicated interest for screening. In Abdulwahab, et al (2011) study, only 5.8% of their respondents were aware of Cancer of the Prostate screening; none of them have ever been tested for prostate specific antigen and they have never contemplated going for screening, all the respondents as a result of participating in the study agreed to be screened for Cancer of the Prostate but 15.4% indicated that they will screen if it's free.

In addition to lack of understanding, knowledge, access and financial constraints as the most common reason why screening is not done, fear, religious and cultural beliefs were the most common reasons for non-participation in Cancer of the Prostate screening in West Africa (Rebbeck, Zeigler-Johnson, Heyns & Gueye, 2011). According to Olasoji, Babagana, Tligali & Yahaya, (2008), cancer is believed to be as result of curses from wicked people, ancestors' punishment related family member's wrong doing. In Nigeria, lots of men beliefs that not been aware of Cancer of the Prostate can prevent them from having Cancer of the Prostate . They also belief that Cancer of the Prostate has no cure and does not kill, therefore screening is not necessary, and only 46.5% of their respondents indicated some level of awareness about Cancer of the Prostate screening (Nnodimele et.al, 2010). Many patients belief cancer diagnosis is a death sentence; therefore see no reason in screening (Guz, Gursel & Ozbek, 2010).

It has also been discovered that patients in Sub-Sahara region of Africa present with locally advanced or metastatic disease due to limited screening program, inadequate diagnostic facilities, lack of health education, limited skilled oncology personal, poor access to health care facilities, past negative experience, physicians attitudes, cultural and religious beliefs, and ignorance (Woods et.al, 2004). There is a remarkable lack of knowledge about cancer screening among the native African population in Nigeria (Ajape, Babata & Abiola, 2010).

According to Oghenetejiri, (2007) there is also lack of awareness among men in Benin-City, Nigeria towards Cancer of the Prostate screening. Knowledge and perception of Cancer of the Prostate screening is low in Nigeria and 81.5% of their research

participants were willing to be screened for Cancer of the Prostate (Akinremi, Ogo & Olutunde, 2011).

According to WHO (2004), as cited in Nnodimele et.al, (2010) large number of interventions are available for Cancer of the Prostate treatments and it start from primary and secondary prevention intervention. Primary prevention strategies are screening done at the asymptomatic stage of the disease such as physical examination, digital rectal examinations, Prostate specific antigen (PSA) tests which are usually conducted annually for men over 50 and to men who have at least 10-year life expectancy and for younger ones who are at risk (Nnodimele et al, 2010). An abnormal PSA ranges from 20ng/ml- 40ng/ml higher. According to Mayo Clinic, (2012), transrectal ultrasound (TRUS) is a test done by using sound wave echoes to create an image of the prostate gland to visually inspect for abnormal conditions such as gland enlargement, nodules, penetration of tumor through capsule of the gland, and or invasion of seminal vesicles. TRUS may also be used for guidance during needle biopsies of the prostate gland or guiding the nitrogen probes in cryosurgery (American Cancer Society, 2004). TRUS with biopsy is recommended when the PSA level is elevated or an abnormality is detected on DRE. Usually, extent biopsies (both bases, mid glands, and apex) are taken but in high risk patients, the seminal vesicles may also be sampled (American Cancer Society, 2004).

2.32   Health locus of control

Locus of control is a personality construct referring to an individual"s perception of the locus of control of events as determined internally by his/her own behavior versus fate, luck or eternal circumstances (Grantz, 1999). Health locus of control is a psychological construct that refers to whether individuals believe that their behavior or, more correctly, the reinforcements from behavior, is under their control. Locus of control describes the degree to which individuals perceive that outcomes result from their own behaviors or from forces that are external to themselves. This produces a continuum with external control at one end and internal control at the other. Locus of control is a personality characteristic that determines the degree to which an individual believes that he or she is in control of life events. Rotter (1966) states that locus of control can be generalized into a basic dichotomy: internal and external. Individuals with an internal

locus of control believe that future outcomes depend primarily on personal actions, whereas individuals with an external locus of control ascribe actions to factors outside of their control, such as fate or chance. A theoretical construct designed to assess a person's perceived control over his or her own behavior.

The classification internal locus indicates that the person feels in control of events external locus indicates that others are perceived to have that control. Locus of control was viewed as a cognitive expectancy which defined the individual's view of causal factors related to these outcomes. Individuals having an internal locus of control tend to view outcomes as being under their own control, will, or initiative. In contrast, individual having an external locus, ascribe positive and negative outcomes are derived from behaviors generated by the individual such outcomes to factors beyond their control such as luck, fate, chance or circumstance. In short, internal students feel outcomes (both negative and positive) are derived from a basis of empowerment, whereas external students view such outcomes from a basis of disengagement (Nunn and Nunn, 1993).

In 1978, Wallston developed the Multidimensional Health Locus of Control in response to his own findings with the HLC scale consisting of two dimensions, and Levenson's findings which showed that studying internality, fate and chance, and powerful others separately could further improve the scales as predictors of health outcomes (Wallston, Wallston, and De Vellis 1978). Since its development, the MHLC has been widely used in numerous studies and overall validity is dependent on the subscale being utilized, the theoretical context in which it is used, and the statistical analysis conducted to evaluate the data. The MHLC scale is an effective measure that addresses the multidimensional nature of human behavior and has the potential to provide researchers with valuable insights for designing health programs to tailor to these different dimensions, and in turn maximize the impact of such programs (Wallston, 2005).

Since its development, the MHLC has been evaluated in numerous studies of health behavior. Earlier studies conducted in the late 1970s and 1980s showed contradictory results of the MHLC as a predictor of health behavior. Some studies supported that the MHLC was a valuable predictor of health behavior while others did not. Since the 1970s and 1980s the MHLC scales have been assessed in a great diversity

of studies. There is now a more substantial body of evidence that the MHLC subscales are a useful predictor of health behavior when studied in those populations who place a high value on their health. The Multidimensional Health Locus of Control (MHLC) scale is designed to assess the degree to which an individual feels that their actions or other external factors out of their control are responsible for their health status. The MHLC has been used as a predictor of health behavior to explore how to best tailor interventions to target populations. The MHLC consists of three different subscales each of which assesses the three specific factors known to determine health behavior: internality, powerful others, and chance. Internality is the degree to which an individual feels they are in control of their own health or how their personal decisions and actions determine their health status. The Chance subscale is designed to assess the degree to which individuals feel that chance occurrences determine their health status. The Powerful Others scale is designed to assess the degree to which an individual feels that health professionals, family members, religious figures, and friends influence their health status (Wallston, Wallston & DeVellis, 1978).

2.33 MHLC and Health Behavior

Norman et al. (1998) performed a large scale analysis of MHLC, health value, and likelihood to participate in health behaviors in 11,632 individuals from the UK. Individuals scoring high on the internality scale were more likely to participate in a higher number of health behaviors. Those who believed that chance and fate played a large role in their health status were less likely to engage in preventative health behaviors. A strong belief in powerful others was found to be related to performance of fewer health behaviors reflecting the belief in the ability of the medical professional to cure illness and protect health.

Bronson et al. (1981) as cited in Wallston & Wallston (1982) found that those individuals scoring high on the internality scale were higher on measures of health behavior, knowledge about health problems, and health plans than low scorers. Fischberg (1979) found a non-statistically significant correlation that internal women were more likely to practice self-breast exams than external women. Dishman et al. (1980) showed that internal individuals were more likely to stay in a physical activity

program than persons who were external. Grady (1981) as cited in Wallston & Wallston (1982) found that women who agreed to participate in her breast self-examination study had higher powerful others and internality scores than those who refused to participate, possibly supporting that those who believe that health can be controlled by powerful others are more likely to participate in health education programs. Kaplan and Cowles (1978) found that internals reduced their cigarette consumption and were more likely to maintain the reduction than externals.

Wallston, Allston, and Maides (1976) found that among college students asked to pretend they had been diagnosed with hypertension, internals were more willing to read a greater volume of hypertension brochures than externals. Toner and Manuck (1979) surveyed individuals undergoing blood pressure screening. After having undergone the screening subjects were allowed to choose from 23 hypertension pamphlets. Internals chose significantly more pamphlets than externals. Sproles (1977) found that among renal dialysis patients, internals were better informed about their condition, were interested in learning more information, and were more willing to attend patient education classes than externals. DeVellis et al. (1980) conducted a nationwide survey of individuals with epilepsy and found that the best single predictor of information seeking behavior was a high powerful others score. Hashimoto and Fukuhara (2004) surveyed 3395 Japanese individuals and found that those who scored low on the powerful others scale were more likely to be active information seekers. The contradictory results of these two studies may be attributed to cultural differences, study population differences, and temporal differences. Hashimoto and Fukuhara (2004) studied a non- patient population whereas DeVellis et al. (1980) studied patients with epilepsy. Individuals who have a clinical diagnosis of epilepsy may have different information needs than the general population. Cultural differences between Japanese and Americans may influence information seeking behavior. Lastly, the contradictory results of these two studies may be due to temporal differences. Personal access to health information resources was quite limited in the early 1980s when compared to the 21st century, as this was before the advent of the internet.

Levin and Schulz (1980) found that renal dialysis patients were more likely to follow the recommended diet if they scored high on internality. Goldstein (1980) found

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that diabetics were more likely to adhere to management recommendations if they scored high on internality and powerful others scales. Hatz (1978) found that high powerful others renal dialysis patients were less likely to gain weight between treatments. Marci (1980) found that high powerful others individuals had a smaller time delay in the time between experiencing chest pain and contacting a health professional.

Burish et al. (1984) concluded that following relaxation training and/or biofeedback, chemotherapy patients with a high external health locus of control experienced less distress and anxiety, lower pulse rates, lower blood pressure, and were less depressed after treatment, suggesting that an external health locus of control maybe advantageous in situations where little personal control is possible.

Soler-Vila, Kasl, and Jones (2003) studied psychosocial factors as predictors of breast cancer prognosis in African American and white women and found that MHLC was unrelated to survival prognosis. Nemcek (1989) found that women who strongly believed that health professionals controlled their health were less likely to adhere to recommended guidelines for breast self-examination.

Barroso et al. (2000) compared breast cancer beliefs of Caucasian and African American women. African American women were more likely to believe in chance and to depend on powerful others. Perceived susceptibility to cancer, doubts about the value of early diagnosis, and beliefs about the severity of the diagnosis were all significantly related to high powerful others scores in African American women. African American high powerful others scorers believed that early diagnosis lead to longer time to worry about illness, and that all women could be cured. African American women who scored high on the chance scale were more likely to believe that all women diagnosed with breast cancer will die. Barroso et al. (2000) concluded that African American women were more likely to be external in their health beliefs due to stronger religious beliefs.

Sturmer et al. (2006) performed a prospective cohort analysis of MHLC and chronic disease development in a German study population of men and women aged 40-65. The findings revealed that individuals with a high internal locus of control had a decreased risk of myocardial infarction, most likely related to willingness to participate in preventative health behaviors. Hayes et al. modified the MHLC into a Diabetes Locus of Control scale and administered the measure to African American patients with type 2

diabetes. The resulting findings showed that those individuals who strongly believed chance determined their health status were more likely to have poor glycemic control over a period of 6 months.

Collectively, health locus of control studies have shown that individuals who tend to be more internal in their health beliefs are more likely to participate in preventative health behaviors than those individuals who are external in their health beliefs. Most studies of MHLC in African Americans have been in patient populations in individuals who have already been diagnosed with a particular health condition.

2.34 Religious Involvement and Cancer

With regard to cancer, there are a number of sociocultural factors that relate to prevention and screening behaviors that affect cancer morbidity and mortality rates. Religious involvement appears to be one of these factors. Religious involvement has been shown to be positively associated with cervical cancer and breast cancer–related knowledge and cancer preventive behavior such as dietary habits or healthy eating patterns as case maybe, and it has also been seen to be associated with cancer coping strategy, adjustment and improvement of quality of life. This also has been attributed to many individuals to look at their religious beliefs as fatalism in thinking about cancer and their chances of getting the disease, and coping with cancer if this does happen (Holt, Lukwago and Kreuter, 2003).

In a qualitative study of church-attending Southeastern African American men, the role of religious beliefs and church support emerged as being important in the context of Cancer of the Prostate prevention and screening behaviors (Blocker et al., 2006). Another study reported that those with religious affiliations were more likely to participate in screening than those without religious affiliations. The association between religious involvement and health may be due to factors such as increased health-related behaviors among religious individuals; the church providing a social network of support; religion providing meaning, social support, coping, and optimism; and providing an interpretive framework for distress or suffering among the church goers.

2.35 Cancer of the Prostate Education

Prevention has several meanings. When many physicians talk about prevention, they refer to screening tests, vaccinations, and prescribing medication. Prevention may also refer to a more fundamental, perhaps truer way to avoid disease, unrelated to prescription drugs or devices, a subject that has drawn insufficient interest from evidence-based medicine so far. This includes what the patient can do personally to delay disease or risk factors, behavioral lifestyle measures that applied sufficiently over the anticipated incubation period of a disease can avoid the appearance of risk factors entirely. Preventive measures can be applied at any stage along the natural history of a disease, with the goal of preventing further progression of the condition. (Giampaoli, 2007).

"Prevention is better than cure" or "an ounce of prevention worth a pound of cure." Both these sayings are undoubtedly true. Research underlines that prevention is necessary. Through high-quality prevention, we can create community environments that foster good health. Prevention is our best hope for reducing unnecessary demand on the healthcare system. Disease prevention covers measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences once established; it is also conceptualized as the process of providing information and persuading people to utilize the information provided in order to prevent diseases (WHO, 1984).

Various health literature has confirm that some of the leading causes of illnesses and death today are related to personal life- style or behavior which can be controlled, or altered through behavior change. It is also a fact that some of the major causes of deaths and illnesses can be delayed or even avoided through behavioural changes (Kalesanwo, 2004). Disease education therefore involves activities that could add more years to qualitative life, people need to be health informed and educated about the adoption of positive health behaviours and avoidance of harmful life style. It is therefore concerned with good personal hygiene, good nutrition, exercise, rest and sleep, avoidance of harmful substances/behavior, control of environmental hazards and building resistance to diseases

EMPIRICAL REVIEW ON SCREENING IN NIGERIA
2.36 Knowledge of Screening

Uzoegwu and Onwurah (2003) stated that misconception about sickle cell anaemia that occurred in the 1970s among black Americans was responsible for higher prevalence of sickle cell disease which became lower in the 1990s when the black Americans became more aware of the disease, this fact was confirmed by the information extracted from personal interviews of the volunteers showing that 71% of the people of the study area had limited knowledge of sickle cell anaemia. They further noted that as a result of this ignorance implied above, a lot of misinformation generated therein could have been responsible for the wrong ascription of the high infant mortality rate caused by sickle cell anaemia to evil spirits, witches and demons or to deities revenging the guilt of affected family members.

Adeyemo, et.al., (2007) stated that awareness on genetic understanding and screening is not a common practice and the diagnosis is usually made when it is presented with a severe complication, even when tragedies such as two or more miscarriages, still births, or children die in infancy, doctors may not order a blood test to take a closer look at genetic makeup of parents or refer them to a genetic counselor some of the time. They further hinted that the most important challenge is to raise the awareness on its causes and prevention through health education. Screening for genetic diseases aims to reduce the burden of these disorders on individuals by identifying those at increased risk, thereby enabling individuals to receive information about their personal health, future health and/or potential health of their offspring (Mennuti, 2008).

Uzoegwu (2001) submitted that in Nigeria, particularly in the rural populations, the knowledge of sickle cell disease was still shallow and limited during this period of study. Misconception about the disease could have as well led to wrong diagnosis and misapplication of sickle cell anaemia management methods which, in turn, could have precipitated high infant mortality rate reported by many residents of the area. Awareness of an identifiable genetic risk factor in a family makes it possible to discuss and offer genetic counseling. It is important to increase public awareness, education and understanding of genetic concepts, extensive education on health programmes such as

raising awareness about the importance of the genetic testing and genetic counseling could be extended to the students at different levels of secondary and tertiary institutions (Adeyemo, Omidiji and Shabi, 2007).

2.37   Attitude towards Cancer Screening

Cousens et.al., (2010) stated that overall, there is a positive attitude towards thalassaemia screening in the few studies examining people's. Before a high school b-thalassaemia carrier screening programme began in Quebec, Canada, 88% of the people informed about the programme at community centres and high schools believed that the screening should begin as soon as possible. A positive attitude has also been shown in two countries in which screening is currently not routinely offered. Gilani and colleagues questioned medical practitioners, lawyers, politicians and parents of children affected by thalassaemia in Pakistan, to determine people's attitudes about thalassaemia carrier screening, over 95% of the parents and 90% of the doctors supported genetic screening; however, only one-third of politicians were in favour of screening (Gilani, Jadoon, Qaiser, et al. 2007; Cousens, et.al, 2010).

Adeyemo et al., (2007) noted that information about genetic screening and counseling should be part of regular medical practice to achieve desired level of knowledge and a change in attitude. Cousens, et al., (2010) submitted that the incidence of b-thalassaemia has decreased significantly after the introduction of screening programmes; the voluntary carrier screening programme which began in Sardinia, Italy in 1975 reduced the incidence of b-thalassaemia from 1:250 to 1:4000 in 1995. Because of carrier screening programme, no one screened has given birth to an affected child, which has caused a 95% decrease in the incidence of b-thalassaemia in that region (Scriver, 2006). A pre-marital screening programme began in Cyprus in 1973 and the number of affected births decreased from 51 in 1974 to 8 in 1979 which continued to decrease after the screening programme further developed into a mandatory screening programme in the early 1980s, with only five affected births occurring between 1991 and 2001 and no affected births occurring between 2002 and 2007 (Cousens, et.al., 2010; Bozkurt, 2007).

2.38 Willing to uptake cancer Screening

Akhigbe and Omuemu (2009) in a study among female health workers in a Nigerian urban city submitted that the uptake of screening methods is dependent on the awareness about breast cancer, if this knowledge is poor among those who should teach others, there will be difficulty promoting this life saving methods. They further noted that an extremely low mammography practice of only 3.1% was found among the study population which is lower than the report among Nurses in Lagos (7.8%) and an abysmally low rate compared with similar studies in Saudi Arabia (42.7%) and Singapore (35%).

The result of a study by John (2011) revealed that very few women in sub-Saharan Africa are ever screened for cervical cancer, low levels of awareness and poor knowledge of cervical cancer coupled with unavailability and inaccessibility of cervical cancer screening services are responsible for the very small number of women being screened in sub-Saharan Africa and in other developing countries; more than three quarters of the respondents in this study agreed that they could avail themselves the screening if they were knowledgeable and if screening was free of charge and causes no harm. The implication of this is that if some barriers are eliminated many women could go for screening. The study further revealed that majority (78.6%) had poor knowledge, 55.7% had positive attitude and only 14.2% had ever been screened and that lack of knowledge was an important barrier (30.7 %.).

According to Abotchie and Shoka (2009), similar finding in a study done in Ghana showed that 48% of women expressed lack of susceptibility to cervical carcinoma. Level of knowledge was not significantly associated with uptake; it was equally poor among those with good knowledge and those with poor knowledge. Susceptibility perception was also a problem; we know that the perception of one's susceptibility to cervical cancer can affect screening behaviour (John, 2011). A significant number of women (half of the respondents) expressed lack of personal susceptibility to cervical cancer and therefore believed it was unnecessary for them to have any screening done. A study done by Wellensiek, Moodley and Nkwanyana (2002) among women from various socioeconomic backgrounds in Durban, Kwazulu Natal,

South Africa showed that only 19% of the respondents had undergone screening test. The situation was worse in Nigeria as revealed in the study by Udigwe (2006) that only 5.7% of respondents had undergone a screening test. Women in African countries do not screen for cervical premalignant lesions and this causes these women to present in hospital with advanced disease as shown in a study done at Muhimbili in 2002 where 90% of women at Muhimbili presented with an advanced disease (Kidanto, Kilewo and Moshiro, 2002). Women's attitude was generally positive as most of them showed a positive attitude towards screening for premalignant cervical lesion, however, this attitude did not improve uptake and this could have been contributed by barriers that were lack of knowledge, thinking that screening is costly, and perception that the procedure is painful and other barriers as shown in the results (John, 2011).

Okobia, Bunker, Okonofua and Osime (2006) in a study on knowledge, attitude and practice of Nigerian women towards breast cancer discovered that the use of screening methods was very low among the study subjects where only 34.9% practiced breast self examination (BSE) in the past year and none ever had a mammogram. Furthermore, the results of this study revealed a poor knowledge and inadequate early detection and preventive practices among women with family history of breast cancer in spite of their susceptibility to the disease. Hence, health education programme is urgently needed to rectify the poor knowledge and inadequate uptake (Adelekan and Edoni, 2012).

2.39 Effect of Gender on Students' Knowledge, Attitude and Uptake of cancer Screening

According to Omuemu, Obarisiagbo and Ogboghodo (2013) there were more female respondents who knew their genotype (91.2%) compared with males (81.0%). Metiboba and Ocholi (2012) hinted that a study of attitudes towards genotype investigation in the United Kingdom documented that young unmarried male and females usually fail to utilize the genetic screening services which expose emerging off-springs to the risk of genetic diseases if parties to the sex actions are genetically incompatible. In the past, young men and women did not have an open choice of marriage. Selection of spouses was the exclusive preserves of parents and family elders.

Garland and Blyth (2005) reported that people who indulge in sex outside marriage fail to utilize pre-marital testing and counseling services because the motivation for action is sexual satisfaction rather than child birth. Tile (2008) opined that investigation about family history and health issues were usually conducted by parents and family elders of both parties before marital solemnizations were consummated. Tile asserted that most prospective couples initiate courtship in schools and marriage in church and mosques before their biological parents become aware of the relationships.

2.40   Effect of Religion on Students' Knowledge, Attitude and Uptake of Cancer Screening

According to Magaji Chiroma, Bukar and Abbo-Jimeta (2014), Islam encourages prospective spouses to conduct medical examination prior to their marriage contract, as it is significant to the health sustainability in the community. It is in fact very important to conduct a pre-marital medical examination due to the fact that the rate of incurable and communicable diseases is increasing rapidly in the community, most especially in developing countries. Such diseases include: HIV, HBV, HCV and other infectious diseases that have to do with people's genotype. Although, this concept of pre-marital genetic screening is not among the essential elements required for a valid marriage in Islam. However, that does not prevent leaders from making it mandatory rule upon the prospective spouses. They further hinted that one of the features of Islamic law is dynamism, that is to say, Islam always goes with time, thus, the following points are pertinent in determining the reasons for conducting medical examination before marriage contract:

(1) Ensuring the health status of the marrying couples, as Islam dislike being cheated and it does not allow harming one another.

(2) Sustainability of the Islamic objective of marriage (procreation). As it can only be achieved in a status of a good health condition.

(3) Protection and control of moral decadence of the younger generation against the effect or repercussion of unhealthy parents who may likely not survive. It was against the above backdrop that in some of the Muslim and Muslims dominated countries such as Saudi Arabia, United Arab Emirate, Bahrain, Egypt, Syria, Lebanon, Tunisia and

Morocco, a pre-marital medical examination has been considered as an avenue for protecting people against the effect of genetic and congenital disorder, as it is common in such societies.

Metiboba and Ocholi (2012) submitted that socio cultural and religious factors deter people from utilizing genetic screening services before conception. However, Blyth and Garland (2005) argued that Christians in their fight against the prevention of mother-to-child transmission of diseases have made pre-marital HIV/genotype investigation compulsory as a precondition for wedding. The Kingdom of Saudi Arabia in 2004 has further stepped forward to make pre-marital medical examination compulsory on spouses. The essence of pre-marital medical examination in addition to the prevention of parental mortality is to also prevent a prenatal transmission and inflectional diseases which mostly affect the fetus or unborn child. In fact, even if the child has been luckily born, there is every tendency for him to be infected with his parents inherited disease in the future (Alswaidi and O'Brienl, 2009). Most of those countries began with encouragement to conduct an optional pre-marital medical examination, so that citizens may reflect over its significance in their marital life. In view of this, one may conclude that the conduct of pre-marital medical examination is not all about the concept of darurah (necessity) but it is also a religious obligation (Magaji Chiroma, Bukar and Abbo-Jimeta, 2014).

2.41 Appraisal of Literature Review

This chapter mainly focused on review of literature which was extensively done The literature reviewed covers both theoretical and empirical review. key facts about Cancer of the Prostate , concept of Cancer of the Prostate , prevalence of Cancer of the Prostate , risk factors to Cancer of the Prostate , prevention of Cancer of the Prostate among men population as well as effects and consequences of Cancer of the Prostate were reviewed. Among other concepts that were reviewed are, knowledge and attitude towards Cancer of the Prostate as well as strategies by which Cancer of the Prostate can be prevented. It was found out that prevalence of Cancer of the Prostate vary according to geographical location and ethnic group. It was also found out that there is link between external locus of control and Cancer of the Prostate . The external locus of control was specifically divided into two which are: powerful other and chance.

Powerful other such as medical doctor, pastor, nurses and counselors have one way or the other influence an individual way of taken decision about his or her health behavior. It was also found out that religious is a multidimensional construct that reflects the shared beliefs and practices of a faith-based, social organization and it has been established that a sizeable body of literature documents relationship between religiousness and health outcomes.

The disease education programme according to literature review depends on the outcome of teaching imbibed into the person who covers measures not only to prevent the occurrence of disease, such as risk factor reduction, but also to arrest its progress and reduce its consequences. The study focus on the effects of disease education on knowledge, attitude and uptake of Cancer of the Prostate screening among male college of education students in Oyo State There are large extent of literatures on the subject matter but a gap exist as majority of the literatures and empirical evidence reviewed on disease education studies were conducted outside colleges of education students. As such, the researcher identifies this gap since there is no documented evidence on disease education with regards to Cancer of the Prostate among colleges of education students in Oyo state, thus, the researcher determined to fill the gap at completion of the study

CHAPTER THREE
METHODOLOGY

This study investigated the effects of Cancer of the Prostate education on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo state, Nigeria.

3.1 Research design

The study adopted quasi-experimental research design of pretest posttest control group with a 2x2x2 factorial matrix. This allowed the researcher to match the respondents in the experimental and control group on similar variables as well as afforded the researcher to see the final difference in the outcome measured in the study which can be attributed to only the effect of the intervention given. Townsend, (2004) noted that the design allows the researcher to introduce a new intervention to the experimental groups and takes measurement for both before and after the intervention to establish the effect observed between them and the control group. The design is schematically represented as thus:

$O_1 X_1 O_2$ ----Experimental group 1 (Cancer of the Prostate Education)

$O_3 X_2 O_4$ --- Control (Personal Hygiene)

Where O_1 and O_3, represent pretest observations for the experimental group and control group respectively while O_2 and O_4 represent posttest observations for the experimental and control group respectively.

X_1 Treatment programme (Cancer of the Prostate Education)

X_2 Control (placebo; Personal hygiene)

The study used a 2x2x2 factorial matrix for the analytical part which is represented in the table below

Table 3.1: 2x2x2 factorial matrix for the analytical part of the study

Treatment	Health locus of control	Religion affiliation
Cancer of the Prostate Education (T$_1$)	Internal	Christianity Islam
	External	Christianity Islam
Personal health hygiene (C)	Internal	Christianity Islam
	External	Christian Islam

The participants were divided into two groups, experimental and control. Pretest and posttest were conducted for the groups. The experimental group was exposed to Cancer of the Prostate Education training, while the control group were exposed to Personal Hygiene Education.

3.2 Population of the study

The population for this study were all college of education male students, Oyo State, Nigeria during the period of the study. This population was chosen because they are custodians of knowledge and also they are at the stage of their lives where characters are formed and since whatever characters formed and knowledge acquired at this stage will go a long way in helping them make informed decision about their lives and also influence their immediate family, environment and society at large, the willingness to uptake Cancer of the Prostate screening without being coaxed will be maximised to the fullness.

3.3 Sample and Sampling Techniques

Two hundred (200) male participants who filled a consent form before participating in the study were used as participants for the study. Multi-stage sampling procedure was used.

Stage 1:

In the first stage purposive sampling technique was used to select the three government owned colleges of Education because these colleges are homogenous in characteristics (Federal college of Education (SP), Oyo, Oyo state college of Education, Lanlate, Oyo state and Emmanuel Alayande college of Education, Oyo town).

Stage 2:

In the second stage, simple random sampling technique of fishbowl without replacement was used to select one out of the two state owned colleges.

Stage 3:

In the third stage, simple random sampling techniques of fishbowl without replacement was used to place the selected colleges into group (experimental and control).

Stage 4:

In the fourth stage, purposive sampling technique was used to select four (4) schools that cut across the selected colleges which are (school of science, school of education, school of art and social sciences and school of languages) due to their homogenity in nature

Stage 5:

In the final stage, twenty five students (volunteers) were used from each of the selected schools for equal representation from each schools.

3.4   Inclusion and Exclusion Criteria

The researcher enrolls 200 participants who are full time students and who signed the consent form. All external and part time students were excluded.

3.5   Research Instruments

Two instruments used for the study were (questionnaire and training package on disease prevention education manual). Both standardized and self-structured questionnaire were used.

Section A: Demographic information of the participants

Section B: The Knowledge of Cancer of the Prostate Screening Scale (KCPSS).

Section C: Attitude Towards Cancer of the Prostate Screening Scale (ACPSS).

Section D: Uptake of Cancer of the Prostate Screening Scale (UCPSS).

Section E. Multidimensional Health Locus of Control (MHLC) with reliability coefficient of 0.74, developed by Wallston, Kaplan and Maides in 2006 is a standardized scale that were adopted for this study.

3.6   Validity of the Instrument

The validity of an instrument is defined as the soundness or the appropriateness of the test instrument in measuring what it is designed to measure. The draft of the questionnaire were made available for criticism to the researcher's supervisor, lecturers in Health Education, Guidance and Counselling, urology as well as Health Promotion and Education Departments, University of Ibadan which facilitated objective criticism that led to subtraction, addition and modification of the research instrument. All comments, suggestions and modifications were studied carefully and were use for

improving the quality of the instrument in relation to the research questions and hypotheses.

In developing the items of the self-developed questionnaire fifty nine items were generated based on exploratory survey discussion with some undergraduates after which the questionnaire was presented to two professional health educators, an oncologist and an expert in psychometrics. This led to subtraction, addition and modification of the items of the questionnaire, leaving the questionnaire with forty two (42) items. This was then subjected to exploratory factor analysis. A Kaiser-Meyer-Olkin (KMO) of 0.73 was obtained which is above the benchmark of 0.60. This indicates that the sample size is adequate for the conduct of factor analysis. In the final, only thirty one (31) of the items were able to meet up with the retention criterion of 0.6. All other items that did not meet the retention criterion were extracted. The test of sphericity was statistically significant which support the factorability of the correlation matrix as the p-value stands at 0.000. Also the inspection of the correlation matrix revealed that all the coefficient of the retained items were 0.6 and above.

3.7 Reliability of the Instrument

Reliability refers to the degree of consistency of an instrument in measuring what it is designed to measure. Reliability according to Nworgu (2006), refers to the degree of consistency between two sets of scores or observations obtained with the same instrument while Kerlinger and Lee (2000) defined it as the accuracy of an instrument in relation to stability and precision over repeated use. To ascertain the reliability of the instrument, a pool of items were generated. These items were factor loaded. The criterion for item retention was set at 0.6. Then after, the instrument was administered on a sample of twenty (20) college of education male students from Kwara State college of Education, Ilorin who were not part of the sample for the study. The data were collected and analyzed using Chronbach Alpha. Knowledge of Cancer of the Prostate Screening Questionnaire (KCPSQ) yielded reliability co-efficient of 0.78, Attitude Towards Cancer of the Prostate Screening Questionnaire (ACPSQ) yielded a reliability co-efficient of 0.81 while Uptake of Cancer of the Prostate Screening Questionnaire (UCPSQ) yielded a reliability co-efficient of 0.77.

3.8 Field Testing of the Instrument

Field testing of an instrument is essential before the actual study is carried out in order to be sure the instrument is reliable, accurate and meaningful. The field testing of the instrument was done using twenty (20) College of Education students from Kwara State College of Education, Ilorin, who was not part of the sample for the study. This acquainted the researcher with the procedures and problems that may be encountered during the actual study.

3.9 Procedure for Data Collection

The researcher collected a letter of introduction from the Head, Department of Health Education, University of Ibadan, Ibadan for the purpose of identification and to enable the researcher to have access to the schools and the respondents. After all the procedures are taken, the purpose of the study was explained to the participants and consent form was given. Only the students who indicated willingness to participate in the study and duly signed the consent form were selected to participate in the study. The researcher organizes a training programme for the five (5) research assistants. This exposed them to their roles; educate them on the manuals to be used.

The treatment package was administered on the participants for a period of eight (8th) weeks in their respective groups in their campuses. The programme was carried out once in a week and the duration per class was two hours. The posttest was administered on the ninth (9th) week   and the schedule of the training were as follows

Part I: For baseline survey of the participants

Part II: For the intervention aspect which include Cancer of the Prostate education and personal hygiene education

Part III: For the post intervention assessment

Treatment procedure for participants in experimental group using Cancer of the Prostate Education,

The following steps were followed:

Session 1

Topic: Pre-test administration

The purpose of this session is to administer the questionnaire on the participant so as to determine the initial performance status of participants on knowledge of uptake of Cancer of the Prostate screening and attitude towards Cancer of the Prostate screening as well as the benefits of the screening.

Objectives: At the end of this session, the participants should be able to

- State at least two reasons for the programme and the desired results
- State what the participant stand to benefits in participating in the programme

Activity

- The researcher welcomes the participants into the programme. The participants were informed that they will be having 12 sessions of 2 hours each for a period of eight weeks.
- The researcher explains the reason for the programme and what the participants stand to benefit at the end of the programme.
- The researcher explains the rules guiding the conduct of the programme and what is expected of the participants.
- The researcher administered the pre-test instruments to the participants.
- As a take home assignment, the participants were asked to document what they stand to benefit from participating in the training programme.

Closing remarks:

- The participants were commended for giving their time and also be encouraged to do their homework.
- The participants were reminded of the time and venue for the next session.

Session 2

Topic: An overview of cancer (Definition, causes and risk factors)

Objective: At the end of the session, participants should be able to

- Define cancer and its types
- Explain the causes of cancer
- State five risk factors of cancer

Activity

- The participants were welcomed warmly
- The researcher introduces and explain the topic of the week to the participants (An overview of cancer)

An overview of cancer

Cancer is a malignant neoplasm, is a broad group of various diseases, all involving unregulated cell growth. In cancer, cells divide uncontrollably forming malignant tumors and invade nearby parts. It can also spread to more distant parts through blood and lymph. Our bodies are made up of billions of cells and these cell groups come together to make tissue and organs of our bodies. Cancer can be grouped according to the type of cell they start in. The main types of cancer are Carcinoma cancer which begins in the skin or in tissues that line the internal organs e.g breast, prostate, cervix and colon.

Sarcoma cancer is the type of cancer that begins in the connective or supportive tissue e.g bone muscle.

Leukemia cancer is the type of cancer that starts in the blood forming tissue, bone marrow

Lymphoma cancer is the type of cancer begins in the cell of the lymphatic system

Myeloma cancer is the type that starts in the plasma cell

Central nervous system cancers is the type that is associated with brain and spinal cord

Causes of cancer

A number of physical, chemical or biological agents known as carcinogens mutate and activate the proto-oncongenes into active and cancer causing oncogenes.

Due to altered gene activity, normal control mechanism is lost and the abnormal cell growth and cell division take place.

Risk factors of cancer

Age: Cancer can take decades to develop. That is why most people diagnosed with cancer are 65 or older. While it is more common in older adults, cancer is not exclusively an adult disease, it can be diagnosed at any age.

Lifestyle: certain lifestyle choices are known to increase the risk of cancer; smoking, drinking, being obese and having unsafe can contribute to cancer

Family history: if cancer is common in your family, it is possible that mutations are being passed from one generation to the next.

Health conditions: Some chronic health conditions can markedly increase the risk of developing certain cancers.

Environment: The environment around one may contain harmful chemicals that can increase one's risk of having cancer. Even if one do not smoke one might inhale second hand smoke if one go where people are smoking or if one live with someone who smokes. Chemicals in one's home or workplace such as asbestos, and benzene are also associated with an increased risk of cancer

Session 3

Topic: Cancer of the Prostate

Objectives: At the end of the session, the participants should be able to:

- Explain what Cancer of the Prostate is
- Identify the types of Cancer of the Prostate

Activity

- The participants were welcomed warmly
- The researcher reviewed the assignment with the participants
- He also explains to the participants what cancer and Cancer of the Prostate does and how it affects the reproductive part of a man. The researcher also will explain the types of Cancer of the Prostate to the participants

Cancer of the Prostate

The Prostate is a small gland in men. It is part of the male reproductive system and it is about the size and shape of walnut. It sits low in the pelvis, below the bladder and just in front of the rectum. The prostate helps make semen, the milky fluids that carry sperm from the testicles through the penis when a man ejaculates. The prostate surrounds part of the urethra, a tube that carries urine out of the bladder and through the penis, the prostate tends to grow bigger with age and may squeeze the urethra or a tumor can make the prostate bigger which is a problem among men population.

Growing older raises the risk of prostate problems and the three common prostate problems are Infection (Prostatitis), Enlarged prostate (BPH, or benign prostatic hyperplasia) and Cancer of the Prostate . One changes not lead to another, for example, having prostatitis or an enlarged prostate does not raise one's chances of Cancer of the Prostate and it is possible for one to have more than one condition at the same time.

Prostatitis is an inflammation or infection of the prostate gland. It affects at least half of all men at some time in their lives. Having this condition does not increase one's risk of any other prostate disease. Prostatitis symptoms are trouble passing urine or pain when passing urine, a burning or stinging feeling when passing urine, strong, frequent urge to pass urine even when there is only a small amount of urine, high fever, low back pain or body aches, pain in the belly, groin or behind the scrotum, rectal pressure or pain, genital and rectal throbbing, sexual problems and loss of sex drive, blocked urine and painful ejaculation.

There are four types of prostatitis which are acute bacterial prostatitis, chronic bacterial prostatitis, chronic prostatitis or chronic pelvic pain syndrome and asymptomatic inflammatory prostatitis.

Acute bacterial prostatitis: This type of infection comes on suddenly (acute) and is caused by bacteria. Symptoms include severe chills and fever. There is often blood in the urine, it is the least common of the four types yet it's the easiest to diagnose and treat.

Chronic bacterial prostatitis: This is also caused by bacteria, this type of condition did not just come or appear suddenly but it can be bothersome. The only symptom one may

experience is bladder infections that keep coming back. This cause may be a defect in the prostate that lets bacteria collects in the urinary tract.

Chronic prostatitis or chronic pelvic pain syndrome: This is a disorder and is the most common but least understood form of the disease, found in men of age from late teens to elderly. Its symptoms go away and then return without warning. There can be pain or discomfort in the groin or bladder area.

Asymptomatic inflammatory prostatitis: This type of disorder usually does not have symptoms and it is often found when the doctor is looking for other conditions like infertility or Cancer of the Prostate . Anyone who come down with this type of disease or disorder usually have the PSA number higher normal and this does not necessarily mean one has cancer but chances are higher.

Enlarged prostate or BPH

BPH: it stands for benign prostatic hyperplasia.

Benign means not a cancer while **hyperplasia** means too much growth. The result is that the prostate becomes enlarged. BPH is not linked to cancer and does not raise one's chances of getting Cancer of the Prostate yet the symptoms for BPH and Cancer of the Prostate can be similar and BPH symptoms usually start after the age of 50 which includes trouble starting a urine or making more than a dribble, passing urine often especially at night, feeling that the bladder has not fully emptied, a strong or sudden urge to pass urine, stopping and starting of urine several time while urinating. At its worst, BPH can lead to a weak bladder, backflow of urine causing bladder or kidney infections, complete block in the flow of urine and kidney failure.

Cancer of the Prostate means that cancer form in the tissue of the prostate and it is the most common cancer in American men after skin cancer. It tends to grow slowly compared with most other cancers. Cell changes may begin 10, 20 or 30 years before a tumor gets big enough to cause symptoms. Pathological abnormalities occur more frequently in the prostate than elsewhere in human males. These changes increase in prevalence with increasing age and include benign prostatic hyperplasia and

adenocarcinoma. Cancer of the Prostate is an adenocarcinoma that may be slow growing, aggressively evolving and metastising predominantly in the bones and lymph nodes.

Cancer of the Prostate causes pain, difficulty in urinating, anomalies of sexual intercourse and erectile dysfunction. Globally, Cancer of the Prostate is the eleventh leading cause of death from cancer in all age groups and the sixth leading cause of cancer-related deaths in men. Development of Cancer of the Prostate is influenced by ethnic and genetic differences, and global distribution. In addition, androgens and ageing, environment, meat and animal fat intake among other factors are important risk factors for Cancer of the Prostate development.

The following are the types of Cancer of the Prostate , Acinar adenocarcinoma, ductal adenocarcinoma, urothelial cancer, squamous cell cancer and small cell Cancer of the Prostate .

Acinar adenocarcinoma: They are cancers that develop in the gland cells that line the prostate gland. They are the most common type of Cancer of the Prostate ; nearly everyone with Cancer of the Prostate has this type.

Ductal adenocarcinoma: This type of cancer starts in the cells that line the ducts (tubes) of the prostate gland. It tends to grow and spread more quickly than acinar adenocarcinoma.

Urothelial cancer: This type of cancer starts in the cells that line the tube carrying urine to the outside of the body (the urethra). This type of cancer usually starts in the bladder and spreads into the prostate and may spread into the bladder entrance and nearly tissues.

Squamous cell cancer: They are cancers that develop from flat cells that cover the prostate. They tend to grow and spread more quickly than adenocarcinoma of the prostate

Small cell Cancer of the Prostate : Small cell Cancer of the Prostate is made up of small round cells and it's a type of neuroendocrine cancer.

As a take home assignment, the participants will be asked to write out what they understand by the term Cancer of the Prostate and types of Cancer of the Prostate

Closing remarks:

• The researcher commends the participants for their cooperation.

• The participants were intimated with the time and venue for the next session.

Session 4

Topic: Epidemiology of Cancer of the Prostate

Objectives: At the end of the session, the participants should be able to:

• Explain the epidemiology of Cancer of the Prostate

• Identify the consequences of Cancer of the Prostate

Activity

• The participants were welcomed warmly

• The researcher reviewed the previous lesson learnt with the participants

• The researcher also explains to the participants the epidemiology of Cancer of the Prostate . The researcher made the participant to know that they stand to benefit a lot as far as their health is concern when they are aware of the menace of Cancer of the Prostate.

Epidemiology of Cancer of the Prostate

Like all the other cancer types, the origin of CPa is unknown. Regardless, there may be certain factors that dispose men to being at risk of CPa. These factors include age, race, and family history of Cancer of the Prostate , certain prostate changes (Prostatic Intraepithelial Neoplasia) and some type of genome. However, having a risk factor does not mean that one will necessarily get Cancer of the Prostate .

Cancer of the Prostate is the second most frequently diagnosed male cancer in the world (899,000 cases or 13.6% of male cancers) and the fifth most common cancer. Incidence rates of Cancer of the Prostate vary by region and continent, largely due to differences in the uptake of the practice of Cancer of the Prostate screening and subsequent biopsy that are widespread in Europe and North America. Incidence rates are

relatively high in certain developing regions such as the Caribbean, South America and Sub-Saharan Africa.

With an estimated 258,000 deaths in the world in 2008, Cancer of the Prostate is the sixth leading cause of death from cancer in men (6.1% of all cancers), Mortality rates are generally high in predominantly black populations, (Caribbean, 26.3/100,000 and Sub-Saharan Africa, 18-19/100,000), very low in Asia, and intermediate in Europe and Oceania. Nigeria was rated first out of the nine countries with highest incidence of Cancer of the Prostate in 2004. This is suggestive of genetic predisposition and that it is estimated that a number of new cases per year was 6,236, and the number of deaths were 5,098 per year

- The researcher explains consequences of Cancer of the Prostate to man's health

Consequences of Cancer of the Prostate

The following are the consequences of Cancer of the Prostate on men's health; the inability to control one's bladder and erectile dysfunction, depression, fatigue, infertility, sickness, waste of resources and death

Closing remarks:

- The researcher commends the participants for their cooperation.
- The participants were intimated with the time and venue for the next session.

Session 5

Topic: Risk factors of Cancer of the Prostate

Objective: At the end of the session, the participants should be able to:

- Explain the risk factors of Cancer of the Prostate
- Identify stage at which Cancer of the Prostate affect man

Risk and predisposing factors for Cancer of the Prostate

The specific causes of Cancer of the Prostate remain unknown, there are some risk factors linked to Cancer of the Prostate , a risk factor is something that raises one's chances of having a problem or disease, having one or more risk factors do not mean that one will get Cancer of the Prostate . The primary risk factors include age, race and family

history; other factors associated with the cancer include hormonal imbalances, the living and working environment, lifestyle and diet, men's health seeking behaviour, sexually transmitted infections and exposure to certain medications. Cancer of the Prostate is uncommon in men younger than 40 years, but becomes more common with advancing age while In the United States, 96% of Cancer of the Prostate s occur in men aged 55 years and above. It occurs in some people at the early age of 40 years while in some people it is at the age of 70 years.

Age: The age being 50 years or older increase the risk of Cancer of the Prostate

Race: African-American men are at highest risk of Cancer of the Prostate . It tends to start at younger ages and grows faster than in men of other races. After African-American men, it is most common among white men, followed by Hispanic and Native American men. Asian-American men can have the lowest rates of Cancer of the Prostate . Aside from race, all men can have other Cancer of the Prostate risk factors.

Family history: Cancer of the Prostate risk is 2 to 3 times higher for men whose fathers or brothers have had the disease. For example, risk is about 10 times higher for a man who has 3 immediate family members with higher with Cancer of the Prostate . The younger a man is when he has Cancer of the Prostate , the greater risk for his male family members. Cancer of the Prostate risk also appears to be slightly higher for men whose mothers or sisters have had breast cancer.

Diet: The risk of Cancer of the Prostate seems to be higher for men eating high-fat diets with few fruits and vegetables.

Closing remarks:

- The researcher commends the participants for their cooperation.
- The participants were intimated with the time and venue for the next session.

Session 6

Topic: The signs and symptoms of Cancer of the Prostate

Objectives: At the end of the session, the participants should be able to:

- Identify the signs and symptoms of Cancer of the Prostate

Activity

- The participants were welcomed warmly
- The researcher asks questions on the previous lesson learnt by the participants before starting the new lesson
- He explains to the participants the signs and symptoms of Cancer of the Prostate

Signs and symptoms of Cancer of the Prostate

Most Cancer of the Prostate s are slow growing and may cause the following health conditions in the life of individual who is diagnosed of the problem of prostate. In most cases, Cancer of the Prostate symptoms are not apparent in the early stages of the disease. The symptoms of Cancer of the Prostate may be different for each man, and any one of these symptoms may be caused by other conditions. Because of the proximity of the prostate gland to the bladder and urethra, Cancer of the Prostate may be accompanied by a variety of urinary symptoms, especially in the early stages. Depending on its size and location, a tumor may press on and constrict the urethra, inhibiting the flow of urine. Some early Cancer of the Prostate signs include: Frequent urination, weak or interrupted urine flow or the need to strain to empty the bladder, the urge to urinate frequently at night, blood in the urine, blood in the seminal fluid, new onset of erectile dysfunction, pain or burning during urination, Painful ejaculation, Loss of bladder control, swelling in legs or pelvic area, bone pain that doesn't go away, or leads to fractures and lower back pain.

If cancer has spread outside of the prostate gland, a man may experience the following signs and symptoms such as pain in the back, hips, thighs, shoulders, or other bones, swelling or fluid buildup in the legs or feet, unexplained weight loss, fatigue, change in bowel habits.

Closing remarks:

- The researcher commends the participants for their cooperation.
- The participants intimated with the time and venue for the next session.

Session 7

Topic: Cancer of the Prostate screening

Objectives: At the end of the session, the participants should be able to:

- Explain what Cancer of the Prostate screening is all about
- State the type of Cancer of the Prostate screening available

Activity

- The participants were welcomed warmly.
- The researcher explains to the participants "Cancer of the Prostate screening"

Cancer of the Prostate Screening

Screening means testing for cancer before you have any symptoms. A screening test can often help find cancer at an early stage. When found early, cancer is less likely to have spread and may be easier to treat. Screening tests are most useful when they have been proven to find cancer early and lower a person's chance of dying from cancer. Several tests may be used to diagnose Cancer of the Prostate . Once a diagnosis is determined, an array of treatment options may be available to treat the disease. Tools and procedures used to diagnose Cancer of the Prostate include:

Digital rectal examination (DRE): This typically is one of the first tests to determine the presence of Cancer of the Prostate . During a DRE, which is often performed as part of a regular physical examination, with a glove and a lubricated finger, the doctor feels the prostate from the rectum to know if there is an unusual growth, the size, lumps, growth spreading beyond the prostate, firmness and texture of the prostate as well as any pain caused by touching or pressing the prostate and the test will lasts for about 10-15 seconds

Biopsy: This is procedure or medical test commonly performed by a surgeon where a tissue sample is removed and examined for the presence, cause or extent of cancer cells or disease. The doctor will take several samples from several areas of the prostate gland. This will help lower the chance of missing any areas of the gland that may have cancer cells.

Prostate Specific Antigen (PSA): The PSA test is a blood test used primarily to screen for Cancer of the Prostate . The test measures the amount of prostate-specific antigen (PSA) in a person's blood. PSA is a protein produced by both cancerous and noncancerous tissue in the prostate, a small gland that sits below the bladder in men. PSA tests are often used to follow men after Cancer of the Prostate treatment. PSA testing is still being studied to see if finding cancer early lowers the risk of dying from Cancer of the Prostate . PSA levels can rise if a man has Cancer of the Prostate but a high PSA is not a proof of cancer, other things can also make PSA levels go up which allow a false positive test result. These other factors may include prostatitis, or if the gland is disturbed in any way, orgasm within the past 24 hours and prostate biopsy or surgery can disturb the prostate. Also some prostate glands naturally produce more PSA than others. However, PSA levels go up with age and African-American men tend to have higher PSA levels in general than men of other races.

PSA levels are measured in terms of units per volume of fluid tested. Doctors often use a score of 4 nanograms (ng) or higher as the trigger for further tests such as prostate biopsy. Doctors may also monitor the PSA velocity which is the rate of change in one's PSA levels over time and any rapid increase in PSA reading can suggest cancer. Notably, there is no magic PSA level below which a man can be assured of having no risk of Cancer of the Prostate nor above which a biopsy should automatically be performed. A man's decision to have a prostate biopsy requires a thoughtful discussion with his physicians, considering not only the PSA level but also his other risk factors, his overall health status and how he perceives the risks and benefits of early detection

Imaging tests: Ultrasound, MRI, CT scan and prostascint scan may be used to help determine the size and stage of the cancer.

Advanced genomic testing: This test looks for abnormalities in the cancer's DNA.

Closing remarks:

- The researcher commends the participants for their time and effort.
- The participants were reminded of the time and venue for the next session.

Session 8

Topic: Barriers to Cancer of the Prostate screening

Importance of uptake of Cancer of the Prostate screening

Objectives: At the end of the session, the participants should be able to:

- State barriers to uptake Cancer of the Prostate screening

- List at least 5 importance of uptake of Cancer of the Prostate screening

Activity

- The participants were welcomed warmly.

- The researcher state the barrier to Cancer of the Prostate screening

Barriers to Cancer of the Prostate screening

Identified barriers to uptake of Cancer of the Prostate screening include the following: cost of the screening, embarrassment, lack of cultural sensitivity of healthcare professionals, lack of knowledge, fatalism, sexual and urinary complications of surgery, lack of transportation and concerns about the accuracy of the test results, discomfort of the screening test and fear of the outcome of the result.

Importance of uptake of Cancer of the Prostate screening

It increases the awareness level and high management rate, it prolong survival level after diagnosis with Cancer of the Prostate **,** it also to reduce the mortality rate that may accompany Cancer of the Prostate in men population.

Closing remarks:

- The researcher commends the participants for their time and effort.

- They were intimated with the time and venue for the next session.

Session 9

- **Topic: Cancer of the Prostate education**

- **Objectives:** At the end of the session the participants should be able to:

- Define Cancer of the Prostate education

- Explain ways to increase their uptake of Cancer of the Prostate screening.

Activity

- **Step 1:** The participants were welcomed warmly
- **Step 2:** The attitude to and knowledge of uptake Cancer of the Prostate screening of the participants will be evaluated
- **Overall review, Post-Experiment Test Administration and Conclusion.**

The participants administered post-test instruments. The researcher then thanks the participants for their co-operation while a token gift were giving to each one of them in appreciation of their participation in the training programme.

Closing remarks

- The researcher commends the participants for their unrelenting cooperation.

- The participants were encouraged to utilize effectively the skills they have acquired on uptake of Cancer of the Prostate screening

Control Group

Treatment Procedure for Participants in Control Group Using Personal Hygiene
The group was taken through personal hygiene. The placebo treatment lasted for eight weeks. Summary of the treatment package is as follows:

Week One
Topic: General Orientation and Administration of Pre-test Instrument
Objectives of the session are the following:

- The purpose of the meetings was stated.
- The procedures to follow by trainers and the participants were explained.
- The pre-test instrument was administered on the participants.

Step 1: The researcher welcome the participants, the participants were allowed to take turns in introducing themselves at the beginning of this session. This is to ensure familiarization among the participants.

Step 2: The researcher stated and explained in clear terms the purpose, objectives and benefits of the training. Days, duration (number of contacts/meetings), time and number

of hours for each contact, venue for the interaction and any relevant information were discussed with the participants.

Step 3: Participants were told what is expected of them in the course of the interaction such as, punctuality, regular attendance, cooperation, participation during discussions, mutual respect for one another, among other things.

Step 4: The researcher thereafter administered the pre-test instrument on the participants which was preceded by explanation on the test and the procedure for responding to the items.

Step 5: As a take home assignment, the participants were asked to read about personal hygiene.

Closing remarks:
- The participants were commended for giving their time and encouraged to do their homework.
- The participants were reminded of the time and venue for the next session.
- The researcher appreciated the participants and closed the session.

Week Two
Topic: General Overview of Personal Hygiene
At the end of this session, the participants were able to:

- Define personal hygiene.
- List at least four (4) good hygiene practices.

Activity
Step 1: The researcher welcomes the participants warmly.

Step 2: The researcher reviewed the assignment with the participants.

Step 3: He also explained to the participants what personal hygiene is.

Step 4: The researcher asked questions to evaluate the topic taught and make corrections where necessary.

Step 5: As a take home assignment, the participants were asked to read about the hygiene barrier.

Closing remarks:

- The researcher commended the participants for their cooperation.

- The participants were reminded to do their homework.

- The researcher appreciated the participants, intimated them with the time and venue for the next session and closed the session.

Week Three
Topic: The Hygiene Barrier

Objectives

At the end of the session, the participants were able to:

- Explain what the hygiene barrier is.

- List at least five (5) hygiene barriers.

Activity

Step 1: The session commenced with an overview of previous session.

Step 2: The researcher introduced and explained the hygiene barrier.

Step 3: The researcher asked questions to evaluate the topic taught and correct where necessary.

Step 4: As a take home assignment, the participants were asked to read about pathogen contact and disease.

Closing remarks:

- The researcher commended the participants for their cooperation.

- The participants were reminded to do their homework.

- The researcher appreciated the participants, intimated them with the time and venue for the next session and closed the session.

Week Four
Topic: Pathogen Contact and Disease

Objectives

At the end of this session, participants were able to:

- Explain pathogen contact and disease.

- List at least two (2) ways that pathogen and disease can be transmitted.

- List at least five (5) ways of spreading pathogen and disease through direct contact.
- List at least two (2) ways of spreading pathogen and disease through indirect contact.

Activity

Step 1: The researcher commenced with the overview of previous session and reviewed the assignment with the participants.

Step 2: The researcher introduced and explained the meaning of pathogen contact and disease.

Step 3: The researcher asked questions to evaluate the topic taught and correct where necessary.

Step 4: As a take home assignment, the participants were asked to read on examples of diseases whose transmission is mitigated by personal hygiene.

<div align="center">

Week Five
Topic: Examples of Diseases whose Transmission can be Mitigated by Personal Hygiene.

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Objectives
At the end of this session, the participants were able to:

- List at least ten (10) examples of diseases whose transmission is mitigated by personal hygiene.

Activity
Step 1: The session commenced with an overview of previous session.

Step 2: The researcher explained the consequences of genetic diseases.

Step 3: Participants were asked personal assessment questions to evaluate the topic taught and make corrections where necessary.

Step 4: As a take home assignment, the participants were asked to read on poor hygiene practices and hand hygiene.

Closing remarks:

- The researcher commended the participants for their cooperation.

- The participants were reminded to do their homework.

- The researcher appreciated the participants, intimated them with the time and venue for the next session and closed the session.

<div align="center">

Week Six
Topic: Poor Hygiene Practices and Hand Hygiene

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Objectives

At the end of this session, the participants were able to:

- Explain poor hygiene practices.

- Explain hand hygiene.

- List at least three examples of poor hygiene practices.

- State the need for hand hygiene.

- List at least three (3) products for maintaining hand hygiene.

Activity

Step 1: The session commenced with an overview of previous session.

Step 2: The researcher explained hand hygiene.

Step 3: Participants were asked personal assessment questions to evaluate the topic taught and make necessary corrections.

Step 4: As a take home assignment, the participants were asked to read on hand washing procedures.

Closing remarks:

- The researcher commended the participants for their cooperation.

- The participants were reminded to do their homework.

- The researcher appreciated the participants, intimated them with the time and venue for the next session and closed the session.

Week Seven
Topic: Hand Washing Procedures
Objectives
At the end of this session, the participants were able to:

- List at least ten (10) hand washing procedures.
- List at least six (6) instances when antibacterial soap or hand sanitizer should be used.

Activity
Step 1: The session began with an overview of previous session.

Step 2: The researcher explained the procedures for hand washing.

Step 3: The researcher explained instances when antibacterial soap or hand sanitizer should be used.

Step 4: Participants were asked personal assessment questions.

Closing remarks:
- The researcher commended the participants for their cooperation.
- The participants were reminded to do their homework.
- The researcher appreciated the participants, intimated them with the time and venue for the next session and closed the session.

Week Eight
Review of Previous Sessions and Administration of Post-test Instrument
Objectives
At the end of the session, participants were able to:
- Summarize what they had learnt from the training programme.
- Show whether they are willing to do more of their decisions.

Activity

Step 1: The participants were warmly welcomed and the session commences with verification of progress made by individual participants. The various assignments given to participants in the course of the training were reviewed.

Step 2: Questions were asked bothering on personal hygiene to know how the participants have internalized the training.

Step 3: The programme was brought to an end with encouragement to continue with the utilization of what they have learnt during the training sessions.

Step 4: Overall review of the training programme was done. Post-test instrument was administered on the participants. The response obtained served as the post-test scores.

Step 5: As an assignment, participants are asked set a goal to make safe marital choices.

Closing remarks
- The researcher commended the participants for their cooperation.
- The participants were encouraged to utilize what they have learnt in the course of the intervention programme.
- Participants were asked to make their comments and appreciated for their consistency and patience in participating in the programme.

TRAINING PROGRAMME FOR EXPERIMENTAL GROUP

Week/ Time	Training Objectives	Content	Audience	Method of delivery	Resource materials	Evaluation
Week 1, 1hr 30mins	At the end of the training, participants should be able to state the goals of the programme.	Introduction of the programme Familiarization with the participants Administration of the pre-test	Participants	Discussion and administration of pre-test questionnaire	Biro, questionnaire, researcher and trained research assistants	The participants should be enthusiastic about the programme.
Week 2, 1hr 30mins	At the end of the training, participants should be able to: define cancer and types, briefly explain the causes of cancer, state 5 risk factors of cancer.	Definition of cancer, types, causes and risk factors	Participants	• Conventional teaching. • Participants will be allowed to ask questions. • Adequate clarifications will be given.	Chart and lecture note	The participants will be able to define cancer with types and state 5 risk factors of cancer.
Week 3, 1hr 30mins	At the end of the training, participants should be able to: Define Cancer of the Prostate , list at least three types of Cancer of the Prostate .	overview of Cancer of the Prostate Types of Cancer of the Prostate	Participants	• The lesson will be delivered. • Discussion method. • Participants will be allowed to ask questions and answers will be given. • Questions will be asked and commendations will be given for questions answered correctly.	Lecture note, chart / posters	The participants will be able to define Cancer of the Prostate . State at least three types of Cancer of the Prostate
Week 4, 1hr30mins	At the end of the training, participants should	Epidemiology of Cancer of the Prostate	Participants	• The lesson will be delivered. • Discussion	Lecture note and charts	The participants will be able to state the

	be able to: state the prevalence rate of Cancer of the Prostate among different sub-groups .			• Participants will be allowed to ask questions and answers will be supplied. • Direct instruction and discussion.		prevalence cancer among different groups.
Week 5, 1hr 30mins	At the end of the training, participants should be able to State at least 4 risk factors of Cancer of the Prostate , Mention at least 4 signs and symptoms of Cancer of the Prostate .	Risk and predisposing factors of Cancer of the Prostate Signs and Symptoms of Cancer of the Prostate	Participants	• The lesson will be delivered through. • Direct instruction and discussion.	Lecture note and chart/ posters	The participants will be able to state at least 4 risk factor
Week 6, 1hr 30mins	At the end of the training, participants should be able to: Identify healthy prostate and unhealthy prostate.	Anatomy of the male reproductive system	Participants	• The lesson will be delivered through Direct instruction and discussion.	Lecture note and chart/ posters	Participants will be able to identify healthy and unhealthy prostate
Week 7, 1hr 30mins	At the end of the training, participants should be able to: Mention at least 3 health consequences of Cancer of the Prostate State 2 economic effects of Cancer of the Prostate . State 2	Consequences/effects of Cancer of the Prostate	Participants	Guided discussion and Direct instruction	Lesson note and chart/ posters	Participants will be able to mention 3 consequences of Cancer of the Prostate , state 2 economic effects of Cancer of the Prostate and 2 psychological effects of Cancer of the

						Prostate
	psychological effects of Cancer of the Prostate					
Week 8, 1hr 30mins	At the end of the session, participants should be able to: Mention one way by which Cancer of the Prostate can be prevented State at least types of Cancer of the Prostate screening.	Prevention/Cancer of the Prostate screening	Participants, research assistants	Guided discussion and Direct instruction.	Lesson note and chart/ posters.	Participants will be able to state one way by which Cancer of the Prostate can be prevented. The participants will be able to state types of Cancer of the Prostate screening.
9	At the end of the session, participants should be able to: State at least 2 barriers to Cancer of the Prostate screening List at least 4 importance of Cancer of the Prostate screening	Barrier to and importance of Cancer of the Prostate screening	Participants	Guided discussion and Direct instruction.	Lesson note and chart/ posters.	Participants will be able to state at least 2 barriers to uptake of prostate screening
10	Appraisal of the training: Summary, questions and answers on the subject matter	Administration of post-test instrument.	Participants/research assistants	Question and answer		Questions and feedback between the participants and trainers. Administration of post-test instrument.

3.10 Procedure for Data Analysis

The completed copies of the questionnaire for both pre-test and post-test were collected, coded and analysed using both descriptive and inferential statistics. The descriptive statistics of frequency count and percentage were used to analyse section A (Demographic Information), and were also used in providing answers to the research questions while inferential statistics of Multivariate Analysis of Co-variance (MANCOVA) was used to test the hypotheses at 0.05 alpha level.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSION OF FINDINGS

This chapter focuses on the analysis of data with respect to research questions and hypotheses earlier stated. The chapter is divided into three (3) sections. Section A presents the demographic information of the respondents; section B provided answers to the research questions while section C provided the results of the tested hypotheses as follows:

Section A: Demographic Information of the Respondents

TABLE 4.1: Distribution of participants according to selected demographic characteristics

Variable	Frequency	Percentage (%)
Level		
100L	32	16.0
200L	118	59.0
300L	50	25.0
Total	**200**	**100.0**
Age		
15-20 years	30	15.0
21-25 years	162	81.0
26-30 years	8	4.0
Total	**200**	**100.0**
Religious affiliation		
Christianity	134	67.0
Islam	66	33.0
Total	**200**	**100.0**

Table 4.1 above shows the distribution of participants according to demographic characteristics of the participants, 32 (16.0%) of the participants were in 100level, 118(59.0%) of the participants were in 200level while 50 (25.0%) of the participants were in 300level, showing that majority of the participants were 200level students. Also from the table, 30(15.0%) of the participants were between the ages of 15 and 20 years, 162(81.0%) participants were between the ages of 21 and 25 years while 8(4.0%) were between the ages of 26 and 30 years showing that majority of the participants were between the ages of 21 and 25 years. Also from the table, 134(67.0%) of the participants were of Christian religion while 66(33.0%) were of Islamic religion showing that majority of the participants were Christian.

Research question 1: What is the level of knowledge of Cancer of the Prostate among male college of education students in Oyo State**?**

TABLE 4.2: The level of knowledge of Cancer of the Prostate among male college of education students in Oyo State

Items	Yes	No	I don't know	Mean	SD
One of the screening tests done to detect Cancer of the Prostate is Prostate Specific Antigen(PSA)	5 2.5%	99 49.5%	96 48.0%	1.5450	.54724
Cancer of the Prostate screening is done through digital rectal examination (DRE) or measurement of serum prostate specific antigen (PSA) levels	2 1.0%	116 58.0%	82 41.0%	1.6000	.51118
PSA should be done every 2 years for a value less than 2.5ng/ml	7 3.5%	110 55.0%	83 41.5%	1.6200	.55420
PSA test should be done yearly	5 2.5%	123 61.5%	72 36.0%	1.6650	.52359
The chance of having Cancer of the Prostate goes up as the PSA level goes up above this value	4 2.0%	115 57.5%	81 40.5%	1.6150	.52741
Elevated PSA concentration is seen in prostatic cancer, benign prostatic hypertrophy, prostatitis, trauma (bicycle riding) and sexual activity	4 2.0%	120 60.0%	76 38.0%	1.6400	.52130

Criterion mean = 2.0

Weighted mean= 1.614

Research question 2: What is the attitude towards the uptake of Cancer of the Prostate screening among male college of education students in Oyo state?

TABLE 4.3: The attitude towards the uptake of Cancer of the Prostate screening among male college of education students in Oyo state

Items	SA	A	D	SD	Mean	SD
There is no good value to derive in going for Cancer of the Prostate screening since it enable one to know his Cancer of the Prostate status	162 81.0%	32 16.0%	3 1.5%	3 1.5%	1.2350	.54889
Cancer of the Prostate screening is meant for men with multiple sexual partners	159 79.5%	27 13.5%	9 4.5%	5 2.5%	1.3000	.67250
Cancer of the Prostate screening is a waste of time	119 59.5%	68 34.0%	6 3.0%	7 3.5%	1.5050	.72290
Cancer of the Prostate is a punishment for sin so there is no need to go for screening	139 69.5%	42 21.0%	9 4.5%	10 5.0%	1.4500	.80044
Nothing concern me about Cancer of the Prostate screening	140 70.0%	42 21.0%	11 5.5%	7 3.5%	1.4250	.75313
Going for Cancer of the Prostate screening is a waste of money	131 65.5%	54 27.0%	8 4.0%	7 3.5%	1.4550	.73531
Whether one goes for Cancer of the Prostate screening or not, anyone that will die of Cancer of the Prostate will still die of it	131 65.5%	56 28.0%	7 3.5%	6 3.0%	1.4400	.70632
There is no benefit in going for Cancer of the Prostate screening	144 72.0%	42 21.0%	10 5.0%	4 2.0%	1.3700	.67482
I have more demanding health issue than to be bothering myself about Cancer of the Prostate screening	143 71.5%	47 23.5%	6 3.0%	4 2.0%	1.3550	.64112
Cancer of the Prostate screening service is not even effective in early detection of Cancer of the Prostate	117 58.5%	76 38.0%	5 2.5%	2 1.0%	1.4600	.60017
				Criterion mean =	2.5	
				Weighted mean=1.399		

The Research questions of this study were answered:

Items number one to six showed the knowledge of the participants to Cancer of the Prostate screening as in research question number one 5(2.5%) of the respondents agreed that one of the screening tests done to detect Cancer of the Prostate is Prostate Specific Antigen (PSA), 99(49.5%) of the respondents disagree while 96(48.0%) of the respondents did not know. Also, 2(1.0%) of the respondents agreed that Cancer of the Prostate screening is done through digital rectal examination (DRE) or measurement of serum prostate specific antigen (PSA) levels, 116(58.0%) of the respondents disagree while 82(41.0%) did not know. Furthermore, the result shows that 7(3.5%) of the respondents agreed that PSA should be done every 2 years for a value less than 2.5ng/ml, 110(55.0%) of the respondents disagree while 83(41.5%) of the respondents did not know. Moreover, 5(2.5%) of the respondents agreed that PSA test should be done yearly, 123(61.5%) of the respondents disagree while 72(36.0%) of the respondents did not know. Also, 4(2.0%) of the respondents agreed that the chance of having Cancer of the Prostate goes up as the PSA level goes up above this value, 115(57.5%) of the respondents disagree while 81(40.5%) of the respondents did not know. The data further reveals that 4(2.0%) of the respondents agreed that elevated PSA concentration is seen in prostatic cancer, benign prostatic hypertrophy, prostatitis, trauma (bicycle riding) and sexual activity, 120(60.0%) of the respondents disagree while 76(38.0%) of the respondents did not know. The weighted mean value of 1.614 is lower than the criterion value of 2.0; hence, it could be inferred that the level of knowledge of Cancer of the Prostate among male college of education students in Oyo state is low and were not encouraging.

The items numbers one to ten reveals the attitude of the participants towards the uptake of Cancer of the Prostate screening as in research question number two;

The data reveals that 162(81.0%) of the respondents strongly agree that there is no good value to derive in going for Cancer of the Prostate screening since it enable one to know his Cancer of the Prostate status, 32(16.0%) of the respondents agree, 3(1.5%) disagree while 3(1.5%) strongly disagree. It further shows that 159(79.5%) of the respondents strongly agree that Cancer of the Prostate screening is meant for men with multiple

sexual partners, 27(13.5%) of the respondents agree, 9(4.5%) disagree while 5(2.5%) strongly disagree. Also, 119(59.5%) of the respondents strongly agree that Cancer of the Prostate screening is a waste of time, 68(34.0%) of the respondents agree, 6(3.0%) disagree while 7(3.5%) strongly disagree. The table further shows that 139(69.5%) of the respondents strongly agree that Cancer of the Prostate is a punishment for sin so there is no need to go for screening, 42(21.0%) of the respondents agree, 9(4.5%) of the respondents disagree while 10(5.0%) of the respondents strongly disagree. Besides, 140(70.0%) of the respondents strongly agree that nothing concern me about Cancer of the Prostate screening, 42(21.0%) of the respondents agree, 11(5.5%) of the respondents disagree while 7(3.5%) of the respondents strongly disagree. Also from the table, 131(65.5%) of the respondents strongly agree that going for Cancer of the Prostate screening is a waste of money, 54(27.0%) of the respondents agree, 8(4.0%) disagree while 7(3.5%) of the respondents strongly disagree. Besides, 131(65.5%) of the respondents strongly agree that whether one goes for Cancer of the Prostate screening or not, anyone that will die of Cancer of the Prostate will still die of it, 56(28.0%) agree, 7(3.5%) disagree while 6(3.0%) of the respondents strongly disagree. The table further shows that 144(72.0%) of the respondents strongly agree that there is no benefit in going for Cancer of the Prostate screening, 42(21.0%) agree, 10(5.0%) disagree while 4(2.0%) of the respondents strongly disagree. Besides, 143(71.5%) of the respondents strongly agree that I have more demanding health issue than to be bothering myself about Cancer of the Prostate screening, 47(23.5%) of the respondents agree, 6(3.0%) disagree while 4(2.0%) strongly disagree. Also, 117(58.5%) of the respondents strongly agree that Cancer of the Prostate screening service is not even effective in early detection of Cancer of the Prostate , 76(38.0%) of the respondents agree, 5(2.5%) of the respondents disagree while 2(1.0%) of the respondents strongly disagree. The weighted mean value of 1.399 is lower than the criterion value of 2.50; hence, it could be inferred that the attitude towards the uptake of Cancer of the Prostate screening among male college of education students in Oyo State was negative.

Hypotheses:

The hypotheses that guided the study were tested at 0.05 level of significance:

Ho 1a: There will be no significant main effect of treatment on knowledge of Cancer of the Prostate screening among college of education male students in Oyo state

Table 4.2: Summary of result showing the pre-post test effects of treatment, health locus of control and religion affiliation on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo state

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Knowledge	2097.777[a]	7	299.682	31.544	.000	.535
	Attitude	15384.168[b]	7	2197.738	120.224	.000	.814
	Uptake	6583.034[c]	7	940.433	59.827	.000	.686
Intercept	Knowledge	13521.247	1	13521.247	1423.213	.000	.881
	Attitude	58152.007	1	58152.007	3181.116	.000	.943
	Uptake	24706.544	1	24706.544	1571.743	.000	.891
Treatment	Knowledge	793.431	1	793.431	83.515	.000	.303
	Attitude	6564.752	1	6564.752	359.115	.000	.652
	Uptake	2188.181	1	2188.181	139.204	.000	.420
Religious	Knowledge	.003	1	.003	.000	.985	.012
	Attitude	6.656	1	6.656	.364	.547	.002
	Uptake	.525	1	.525	.033	.855	.003
Health locus of Control	Knowledge	4.398	1	4.398	.463	.497	.002
	Attitude	3.398	1	3.398	.186	.667	.001
	Uptake	56.961	1	56.961	3.624	.048	.019
Treatment * Religious	Knowledge	1.059	1	1.059	.111	.739	.001
	Attitude	11.853	1	11.853	.648	.422	.003
	Uptake	4.126	1	4.126	.262	.609	.001
Treatment * Health locus of Control	Knowledge	5.814	1	5.814	.612	.435	.003
	Attitude	13.891	1	13.891	.760	.384	.004
	Uptake	30.868	1	30.868	1.964	.163	.010
Religious *Health locus of Control	Knowledge	4.189	1	4.189	.441	.507	.002
	Attitude	41.435	1	41.435	2.267	.134	.012
	Uptake	2.762	1	2.762	.176	.676	.001
Treatment * Religious * Health locus of Control	Knowledge	1.353	1	1.353	.142	.706	.001
	Attitude	8.878	1	8.878	.486	.487	.003
	Post uptake	6.156	1	6.156	.392	.532	.002
Error	Knowledge	1824.098	192	9.501			
	Attitude	3509.832	192	18.280			
	Uptake	3018.086	192	15.719			
Total	Knowledge	37075.000	200				
	Attitude	159344.000	200				
	Uptake	71694.000	200				
Corrected Total	Knowledge	3921.875	199				
	Attitude	18894.000	199				
	Uptake	9601.120	199				

a. R Squared = .535 (Adjusted R Squared = .518)
b. R Squared = .814 (Adjusted R Squared = .807)
c. R Squared = .686 (Adjusted R Squared = .674)

There will be no significant main effect of treatment on knowledge of Cancer of the Prostate screening among college of education male students in Oyo state

Table 4.2 showed that there was a significant main effect of treatment on knowledge of Cancer of the Prostate screening ($F_{(1,192);}$ = 83.515, p< 0.05, η^2=.303); therefore, $H0_1$ was rejected. This implies that the treatments contributed significantly to the variation in participants' scores on knowledge of Cancer of the Prostate screening. The eta value of .303 shows that the treatments had a contribution of about 30% to knowledge of Cancer of the Prostate screening of the participants.

Table 4:3a: Adjusted Marginal Mean showing the direction of difference in knowledge of uptake of Cancer of the Prostate screening between the groups

Dependent Variable	Treatment groups	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Experimental group	15.704	.513	14.692	16.717
	Control group	9.580	.431	8.730	10.429

Table 4.3a showed that participants in treatment group obtained a higher mean score ($\bar{x}$ =15.704) than the participants in control group who had a mean score of ($\bar{x}$ =9.580). This shows that participants that were exposed to Cancer of the Prostate education performed better than the participants in the control group. It then means that the Cancer of the Prostate education was an effective programme that had effect on knowledge of Cancer of the Prostate screening among the participants.

Ho1b: There will be no significant main effect of treatment on attitude towards the uptake of Cancer of the Prostate among college of education male students in Oyo state

The Table 4.3 showed that there was a significant main effect of treatment on attitude towards the uptake of Cancer of the Prostate screening ($F_{(1,192);}$ = 359.115, p< 0.05, η^2=.652), therefore, the hypothesis was rejected. The implication was that the treatments contributed significantly to the variation in participants' scores on attitude towards the uptake of Cancer of the Prostate screening. The eta value of .652 shows that the treatments had a contribution of about 65.2% to attitude towards the uptake of Cancer of the Prostate screening of the participants

Table 4:3b: Adjusted Marginal Mean showing the direction of difference in attitude towards the uptake of Cancer of the Prostate screening between the groups

Dependent Variable	Treatment groups	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Experimental group	35.026	.712	33.621	36.431
	Control group	17.409	.597	16.230	18.587

Table 4.3b showed that participants in treatment group obtained a higher mean score ($\bar{x}$ =35.026) than the participants in control group who had a mean score of ($\bar{x}$ =17.409). This shows that participants that were exposed to Cancer of the Prostate education performed better than the participants in the control group. It then means that Cancer of the Prostate education was an effective programme that improved and could bring about positive attitude towards Cancer of the Prostate screening among the participants.

Ho1c: There will be no significant main effect of treatment on the willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo

The result presented in Table 4.3 showed that there was a significant main effect of treatment on willingness to uptake Cancer of the Prostate screening ($F_{(1,192)}$ = 139.204, $p < 0.05$, η^2=.420); therefore, the hypothesis was rejected. This implies that the treatments contributed significantly to the variation in participants' scores on the willingness to uptake Cancer of the Prostate screening. The eta value of .420 shows that the treatment had a contribution of about 42% to the uptake of Cancer of the Prostate screening among the participants

Table 4:3c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening between the groups

Dependent Variable	Treatment groups	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Experimental group	22.175	.660	20.872	23.477
	Control group	12.003	.554	10.910	13.096

Table 4.3c showed that participants in treatment group obtained a higher mean score ($\bar{x}$ =22.175) than the participants in control group who had a mean score of ($\bar{x}$ =12.003). This shows that participants that were exposed to Cancer of the Prostate education performed better than the participants in the control group. It then means that Cancer of the Prostate education was an effective programme that could enhance the willingness to uptake Cancer of the Prostate screening among the participants.

H0 2a: There will be no significant main effect of religious affiliation on knowledge of Cancer of the Prostate screening among college of education male students in Oyo state Table 4.2 showed that there was no significant main effect of religious affiliation on knowledge of Cancer of the Prostate screening ($F_{(1,192)}$; = .111, p> 0.05, η^2=.012); the hypothesis was therefore accepted. This implies that religious affiliation did not contribute significantly to the variation in participants' score on knowledge of Cancer of the Prostate screening among the college of education male students. The eta value of .002 shows that religious affiliation had a contribution of less than 1% to knowledge of Cancer of the Prostate screening of the participants

Table 4:4a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by religious affiliation between the treatment groups

Dependent Variable	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Christianity	12.648	.399	11.861	13.436
	Islam	12.636	.538	11.574	13.698

Table 4.4a shows that participants who are of Christian religion obtained a higher mean score ($\bar{x}$ =12.648) than the participants who are of Islamic religion with a mean score of ($\bar{x}$ =12.636). This shows that participants who are of Christian religion performed better than the participants who are of Islamic religion. It then means that participants who are of Christian religion had better knowledge of Cancer of the Prostate screening than the participants who are of Islamic religion.

H02b: There will be no significant main effect of religious affiliation on attitude towards Cancer of the Prostate screening among male college of education students in Oyo.

Table 4.2 revealed that there was no significant main effect of religious affiliation on attitude towards Cancer of the Prostate screening ($F_{(1;192)}$; = .364, p> 0.05, η^2=.002); hence, the hypothesis was accepted. This implies that religious affiliation did not contribute significantly to the variation in participants' score on attitude towards Cancer of the Prostate screening. The eta value of .002 shows that religious affiliation had a contribution of less than 1% to attitude towards Cancer of the Prostate screening of the participants

Table 4:4b: Adjusted Marginal Mean showing the direction of difference in attitude towards Cancer of the Prostate screening by religious affiliation between the treatment groups

Dependent Variable	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Christianity	25.937	.554	24.845	27.029
	Islam	26.498	.747	25.025	27.971

Table 4.4b showed that participants who are of Islamic religion obtained a higher mean score ($\bar{x}$ =62.498) than the participants who are of Christian religion with a mean score of ($\bar{x}$ =25.937). This shows that participants who are of Islamic religion performed higher than the participants who are of Christian religion. It then means that participants who are of Islamic religion had better attitude towards Cancer of the Prostate screening than the participants who are of Christian religion.

H02c: There will be no significant main effect of religious affiliation on uptake of Cancer of the Prostate screening among college of education male students in Oyo

Table 4.4 showed that there was no significant main effect of religious affiliation on uptake of Cancer of the Prostate screening ($F_{(1,192);}$ = .033, p> 0.05, η^2=.003); the hypothesis was therefore accepted. This implies that religious did not contribute significantly to the variation in participants' scores on uptake of Cancer of the Prostate screening. The eta value of .003 shows that religion had a contribution of less than 1% willing to uptake Cancer of the Prostate screening of the participants

Table 4:4c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening by religious affiliation between the treatment groups

Dependent Variable	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Christianity	17.010	.513	15.998	18.023
	Islam	17.168	.693	15.802	18.534

Table 4.4c showed that participants who are of Islamic religion obtained a higher mean score ($\bar{x}$ =17.168) than the participants who are of Christian religion with a mean score of ($\bar{x}$ =17.010). This shows that participants who are of Islamic religion performed better than the participants who are of Christian religion. It then means that participants who are of Islamic religion are willing to uptake Cancer of the Prostate screening than the participants who are of Christian religion.

Ho 3a: There will be no significant main effect of health locus of control on knowledge of Cancer of the Prostate screening among male college of education students in Oyo.

The Table 4.2 showed that there was no significant main effect of health locus of control on knowledge of Cancer of the Prostate   screening ($F_{(1,192);} = .463$, $p > 0.05$, $\eta^2 = .002$); hence, the hypothesis was accepted. This implies that health locus of control did not contribute significantly to the variation in participants' score on knowledge of Cancer of the Prostate   screening. The eta value of .002 shows that health locus of control had a contribution of less than 1% to knowledge of Cancer of the Prostate   screening of the participants

Table 4:5a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by health locus of control between the treatment groups

Dependent Variable	Locus of Control	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Internal	12.414	.516	11.397	13.431
	External	12.870	.428	12.026	13.714

Table 4.5a showed that participants with external health locus of control obtained a higher mean score ($\bar{x}$ =12.870) than the participants with internal health locus of control with a mean score of ($\bar{x}$ =12.414). This shows that participants with external health locus of control performed better than the participants with internal health locus of control. It then means that external health locus of control is better on knowledge of Cancer of the Prostate screening.

Ho3b: There will be no significant main effect of health locus of control on attitude towards Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant main effect of health locus of control on attitude towards Cancer of the Prostate screening ($F_{(1,192)}$ = .186, p>0.05, η^2=.001); the hypothesis was therefore accepted. This implies that health locus of control did not contribute significantly to the variation in participants' score on attitude towards Cancer of the Prostate screening. The eta value of .001 shows that health locus of control had a contribution of less than 1% to attitude towards Cancer of the Prostate screening of the participants

Table 4:5b: Adjusted Marginal Mean showing the direction of difference in attitude towards Cancer of the Prostate screening by health locus of control between the treatment groups

Dependent Variable	Health locus of Control	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Internal	26.418	.715	25.007	27.829
	External	26.017	.594	24.846	27.188

Table 4.5b showed that participants with internal health locus of control obtained a higher mean score of ($\bar{x}$ =26.418) than the participants with external health locus of control with a mean score of ($\bar{x}$ =26.017). This shows that participants with internal health locus of control performed better than the participants with external health locus of control. It then means that internal health locus of control is better on attitude towards Cancer of the Prostate screening than external health locus of control.

Ho 3c: There will be no significant main effect of health locus of control on the uptake of Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was a significant main effect of health locus of control on the uptake of Cancer of the Prostate screening ($F_{(1,192);} = 3.624$, $p < 0.05$, $\eta^2 = .019$); hence, the hypothesis was rejected. This implies that health locus of control contributed significantly to the variation in participants' score on uptake of Cancer of the Prostate screening. The eta value of .019 shows that health locus of control had a contribution of about 2% to uptake of Cancer of the Prostate screening among the participants

Table 4:5c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening by health locus of control between the treatment groups

Dependent Variable	Health locus of control	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Internal	16.268	.663	14.960	17.577
	External	17.909	.551	16.823	18.996

Table 4.5c showed that participants with external health locus of control obtained a higher mean score of ($\bar{x}$ =17.909) than the participants with internal health locus of control with a mean score of ($\bar{x}$ =16.268). This shows that participants with external health locus of control performed better than the participants with internal health locus of control. It then means that external health locus of control is better on willingness to uptake Cancer of the Prostate screening among the participants.

Ho 4a: There will be no significant interaction effect of treatment and religious affiliation on knowledge of Cancer of the Prostate screening among college of education male students in Oyo.

The table 4.2 showed that there was no significant interaction effect of treatment and religion affiliation on knowledge of Cancer of the Prostate screening ($F_{(1,192)}$; = .739, $p>0.05$, η^2=.001); therefore, the hypothesis was accepted. This implies that the interaction effect of treatment and religious affiliation did not contribute significantly to the variation in participants' scores on knowledge of Cancer of the Prostate screening. The eta value of .001 shows that the interaction effects of treatment and religious affiliation had a contribution of less than 1% to knowledge of Cancer of the Prostate screening

Table 4:6a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by interaction effect of treatment and religious affiliation between the treatment groups

Dependent variable	Treatment Groups	Religion affiliation	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Experimental group	Christianity	15.823	.616	14.609	17.037
		Islam	15.586	.822	13.965	17.208
	Control group	Christianity	9.474	.508	8.472	10.477
		Islam	9.685	.696	8.313	11.057

Table 4.6a showed that participants in treatment group who are of Christian religion obtained a higher mean score of ($\bar{x}$ =15.823) than the participants who are of Islamic religion with a mean score of ($\bar{x}$ =15.586). This shows that participants in treatment group who are of Christian religion performed better in knowledge of Cancer of the Prostate screening than participants who are of Islamic religion. In the control group, participants who are of Islamic religion performed better with a higher mean score of ($\bar{x}$ =9.685) than their Christian counterparts with a mean score of   ($\bar{x}$ =9.474). This shows that participants in control group who are of Islamic religion performed better in knowledge of Cancer of the Prostate screening than participants who are of Christian religion.

The overall comparism showed that participants in experimental group who are of Christian religion had the highest mean score, followed by participants in treatment group who are of Islamic religion

Ho4b: There will be no significant interaction effect of treatment and religious affiliation on attitude towards Cancer of the Prostate screening among college of education male students in Oyo .

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment and religious affiliation on attitude towards Cancer of the Prostate screening ($F_{(1,192);}$ = .422, p>0.05, η^2=.003); therefore, the hypothesis was accepted. This implies that the interaction effect of treatment and religious affiliation did not contribute significantly to the variation in participants' scores on attitude towards Cancer of the Prostate screening. The eta value of .003 shows that the interaction effect of treatment and religious affiliation had a contribution of less than 1% on attitude towards Cancer of the Prostate screening among the participants

Table 4:6b: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by interaction effect of treatment and religious affiliation among the treatment groups

Dependent variable	Treatment Groups	Religion affiliation	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Experimental	Christianity	34.371	.854	32.687	36.056
		Islam	35.681	1.140	33.432	37.930
	Control	Christianity	17.502	.705		18.893
		Islam	17.315	.965	16.112	19.218
					15.412	

Table 4.6b showed that participants in experimental group who are of Islamic religion obtained a higher mean score of ($\bar{x}$ =35.681) than the participants in experimental who are of Christian religion with a mean score of ($\bar{x}$ =34.371). This shows that participants in experimental group who are of Islamic religion performed better in attitude towards Cancer of the Prostate screening than participants who are of Christian religion. In the control group, participants who are of Christian religion performed better with a higher mean score of ($\bar{x}$ =17.502) than their Islamic counterpart with a mean score of ($\bar{x}$ =17.315). This shows that participants in control group who are of Christian religion performed better in attitude towards Cancer of the Prostate screening than participants in control who are of Islamic religion.

The overall comparison shows that participants in experimental group who are of Muslim religion had the highest mean score followed by participants in treatment group who are of Christian religion.

Ho4c: There will be no significant interaction effect of treatment and religious affiliation on uptake of Cancer of the Prostate screening among college of education male students in Oyo state.

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment and religious affiliation on uptake of Cancer of the Prostate screening ($F_{(1,192);} = .262$, $p>0.05$, $\eta^2=.001$); hence, the hypothesis was rejected. This implies that the interaction effect of treatment and religion affiliation did not contribute significantly to the variation in participants' score on uptake of Cancer of the Prostate screening. The eta value of .001 shows that the interaction effect of treatment and religious affiliation had a contribution of less than 1% to uptake of Cancer of the Prostate screening among the participants

Table 4:6c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening by interaction effect of treatment and religious affiliation between the treatment groups

Dependent variable	Treatment Groups	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Experimental	Christianity	21.875	.792	20.313	23.437
		Islam	22.474	1.057	20.389	24.560
	Control	Christianity	12.145	.654		13.435
		Islam	11.861	.895	10.856	13.626
					10.096	

Table 4.6c shows that participants in treatment group who are of Islamic religion obtained a higher mean score of ($\bar{x}$ =22.474) than the participants in treatment group who are of Christian religion with a mean score of ($\bar{x}$ =21.875). This shows that participants in treatment group who are of Islamic religion performed better in uptake of Cancer of the Prostate screening than participants who are of Christian religion. In the control group, participants who are of Christian religion performed better with a higher mean score of ($\bar{x}$ =12.145) than their Muslim counterpart with a mean score of ($\bar{x}$ =11.895). This shows that participants in control group who are of Christian religion performed better in willingness to uptake Cancer of the Prostate screening than participants who are of Muslim religion.

The overall comparism shows that participants in treatment group who are of Muslim religion had the highest mean score followed by participants in treatment group who are of Christian religion.

Ho5a: There will be no significant interaction effect of treatment and health locus of control on knowledge of Cancer of the Prostate screening among college of education male students in Oyo.

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment and health locus of control on knowledge of Cancer of the Prostate screening ($F_{(1,192)}$ = .463, $p>0.05$, η^2=.002); hence, the hypothesis was accepted. This implies that the interaction effect of treatment and health locus of control did not contribute significantly to the variation in participants' score on knowledge of Cancer of the Prostate screening. The eta value of .002 shows that the interaction effect of treatment and health locus of control had a contribution of less than 1% to knowledge of Cancer of the Prostate screening among the participants

Table 4:7a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by interaction effect of treatment and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Experimental group	Internal	15.214	.966	13.309	17.120
		External	16.195	.349	15.507	16.882
	Control group	Internal	9.614	.361	8.902	10.326
		External	9.545	.782	8.003	11.088

Table 4.7a shows that participants in treatment group with external health locus of control obtained a higher mean score ($\bar{x}$ =16.195) than the participants in treatment group with internal health locus of control with a mean score of ($\bar{x}$ =15.214). This shows that participants in treatment group with external health locus of control performed better than the participants in treatment group with internal health locus of control. It then means that external health locus of control is better on knowledge of Cancer of the Prostate screening than internal health locus of control. In the control group, participants with internal health locus of control obtained a higher mean score ($\bar{x}$ =9.614) than the participants with external health locus of control with a mean score of ($\bar{x}$ =9.545). This shows that participants in control group with internal health locus of control performed better than the participants in the same group with external health locus of control. It then means that internal health locus of control is better on knowledge of Cancer of the Prostate screening than external health locus of control in the same group.

The overall comparism shows that participant in treatment group with external health locus of control had the highest mean score, followed by participants in treatment group with internal health locus of control. This means that external health locus of control is the best for knowledge of Cancer of the Prostate screening among the participants

Ho 5b: There will be no significant interaction effect of treatment and health locus of control on attitude towards Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment and health locus of control on attitude towards Cancer of the Prostate screening ($F_{(1,192);}$ = .760, p>0.05, η^2=.004); therefore, the hypothesis was accepted. This implies that the interaction effect of treatment and health locus of control did not contribute significantly to the variation in participants' scores on attitude towards Cancer of the Prostate screening. The eta value of .004 shows that the interaction effect of treatment and health locus of control had a contribution of less than 1% to attitude towards Cancer of the Prostate screening

Table 4:7b: Adjusted Marginal Mean showing the direction of difference in attitude towards Cancer of the Prostate screening by interaction effect of treatment and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Experimental group	Internal	34.821	1.340	32.179	37.464
		External	35.231	.483	34.277	36.185
	Control group	Internal	18.014	.501	17.026	19.002
		External	16.803	1.085	14.663	18.943

Table 4.7b showed that participants in treatment group with external health locus of control obtained a higher mean score ($\bar{x}$ =35.231) than the participants in treatment group with internal health locus of control with a mean score of ($\bar{x}$ =34.821). This shows that participants in treatment group with external health locus of control performed better than the participants in treatment group with internal health locus of control. It then means that external health locus of control is better in attitude towards Cancer of the Prostate screening than internal health locus of control in treatment group. In the control group, participants with internal health locus of control obtained a higher mean score ($\bar{x}$ =18.014) than the participants with external health locus of control with a mean score of ($\bar{x}$ =16.803). This shows that participants in control group with internal health locus of control performed better than the participants in control group with external health locus of control. It then means that internal health locus of control is better on attitude towards Cancer of the Prostate screening than external health locus of control in the control group

The overall comparism shows that participant in treatment group with external health locus of control had the highest mean score, followed by participants in treatment group with internal health locus of control.

Ho5c: There will be no significant interaction effect of treatment and locus of control on willingness to uptake Cancer of the Prostate screening among male college of education students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment and locus of control on attitude towards Cancer of the Prostate screening ($F_{(1,192);}$ = 1.964, $p>0.05$, η^2=.010); therefore, the hypothesis was accepted. This implies that the interaction effect of treatment and health locus of control did not contribute significantly to the variation in participants' score on uptake of Cancer of the Prostate screening. The eta value of .010 shows that the interaction effect of treatment and health locus of control had a contribution of about 1.0% to willingness to uptake Cancer of the Prostate screening

Table 4:7c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening by interaction effect of treatment and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Experimental group	Internal	20.750	1.243	18.299	23.201
		External	23.599	.448	22.715	24.483
	Control group	Internal	11.787	.464	10.871	12.703
		External	12.220	1.006	10.235	14.204

Table 4.7c showed that participants in treatment group with external health locus of control obtained a higher mean score ($\bar{x}$ =23.599) than the participants in treatment group with internal health locus of control with a mean score of ($\bar{x}$ =20.750). This shows that participants in treatment group with external health locus of control performed better than the participants in treatment group with internal health locus of control. It then means that external health locus of control is better on uptake of Cancer of the Prostate screening than internal health locus of control. In the control group, participants with external health locus of control obtained a higher mean score ($\bar{x}$ =12.220) than the participants with internal health locus of control with a mean score of ($\bar{x}$ =11.787). This shows that participants in control group with external health locus of control performed better than the participant with internal health locus of control in the same group. It then means that external health locus of control is better on uptake of Cancer of the Prostate screening than internal health locus of control.

The overall comparism shows that participants in treatment group with external health locus of control had the highest mean score, followed by participants in experimental group with internal health locus of control.

Ho 6a: There will be no significant interaction effect of religious affiliation and health locus of control on knowledge of Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of religious affiliation and health locus of control on knowledge of Cancer of the Prostate screening ($F_{(1,192);}$ = .441, p>0.05, η^2=.002); therefore, the hypothesis was accepted. This implies that the interaction effect of religious affiliation and health locus of control did not contribute significantly to the variation in participants' scores on knowledge of Cancer of the Prostate screening. The eta value of .002 shows that the interaction effect of religious affiliation and health locus of control had a contribution of less than 1% to knowledge of Cancer of the Prostate screening

Table 4:8a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by interaction effect of religious affiliation and health locus of control between the treatment groups

Dependent variable	Religious affiliation	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate screening	Christianity	Internal	12.643	.618	11.424	13.861
		External	12.654	.505	11.657	13.651
	Islam	Internal	12.185	.826	10.557	13.814
		External	13.086	.691	11.723	14.450

Table 4.8a showed that participants who are Christian with external health locus of control obtained a higher mean score of ($\bar{x}$ =12.654) than the participants who are Christian but with internal health locus of control with a mean score of ($\bar{x}$ =12.643). This shows that participants who are Christian religious affiliation with external health locus of control performed better than the participants who are Christian but with internal health locus of control. It then means that Christian religious affiliation with external health locus of control is better on knowledge of Cancer of the Prostate screening than Christianity with internal health locus of control. Also from the table, participants who are of Islamic religion with external health locus of control obtained a higher mean score of ($\bar{x}$ =13.086) than the participants who are Muslim religious affiliation with internal health locus of control with a mean score of ($\bar{x}$ =12.185). This shows that participants who are of Islamic religious affiliation with external health locus of control performed better than the participants who are of Islamic religious affiliation with internal health locus of control. It then means that Islam with external health locus of control is better on knowledge of Cancer of the Prostate screening than Muslim religious affiliation with internal health locus of control.

The overall comparism shows that participants who are of Muslims religious with external health locus of control had the highest mean, followed by participants who are of Christian religious affiliation with external health locus of control. This means that religious affiliation with external health locus of control is the best for knowledge of Cancer of the Prostate screening.

Ho 6b: There will be no significant interaction effect of religious affiliation and health locus of control on attitude towards Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of religious affiliation and health locus of control on attitude towards Cancer of the Prostate screening ($F_{(1,192);} = 2.267$, $p > 0.05$, $\eta^2 = .012$); therefore, the hypothesis was accepted. This implies that the interaction effect of religious affiliation and health locus of control did not contribute significantly to the variation in participants' scores on attitude towards Cancer of the Prostate screening. The eta value of .012 shows that the interaction effect of religious affiliation and health locus of control had a contribution of about 2% to attitude towards Cancer of the Prostate screening

Table 4:8b: Adjusted Marginal Mean showing the direction of difference in attitude towards Cancer of the Prostate screening by interaction effect of religion affiliation and health locus of control between the treatment groups

Dependent variable	Religious affiliation	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Attitude towards Cancer of the Prostate screening	Christianity	Internal	25.437	.857	23.747	27.128
		External	26.436	.701	25.053	27.819
	Islam	Internal	27.398	1.145	25.139	29.657
		External	25.598	.959	23.707	27.489

Table 4.8b shows that participants who are Christian with external health locus of control obtained a higher mean score of ($\bar{x}$ =26.436) than the participants who are Christian but with internal health locus of control with a mean score of ($\bar{x}$ =25.436). This shows that participants who are Christian with external health locus of control performed better than the participants who are Christian but with internal health locus of control. It then means that Christianity with external health locus of control is better on attitude towards Cancer of the Prostate screening than Christianity with internal health locus of control. Also from the table, participants who are Muslim with internal health locus of control obtained a higher mean score of ($\bar{x}$ =27.398) than the participants who are Muslim with external health locus of control with a mean score of ($\bar{x}$ =27.598). This shows that participants who are Muslim with internal health locus of control performed better than the participants who are of Islamic religion with external locus of control. It then means that Islam with internal health locus of control is better on attitude towards Cancer of the Prostate screening than those of Islamic religion with external health locus of control. The overall comparism shows that participants who are of Islamic religion with internal health locus of control had the highest mean, followed by participants who are Christians with external health locus of control. This means that religion with internal health locus of control is the best for attitude towards Cancer of the Prostate screening.

Ho 6c: There will be no significant interaction effect of religious affiliation and health locus of control in willingness to uptake Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of religious affiliation and health locus of control on uptake of Cancer of the Prostate screening ($F_{(1,192)}$; = $.176$, p>0.05, η^2=.001); therefore, the hypothesis was accepted. This implies that the interaction effect of religious affiliation and health locus of control did not contribute significantly to the variation in participants' score on uptake of Cancer of the Prostate screening. The eta value of .001 shows that the interaction effect of religious affiliation and health locus of control had a contribution of less than 1% to willingness to uptake Cancer of the Prostate screening

Table 4:8c: Adjusted Marginal Mean showing the direction of difference in uptake towards Cancer of the Prostate screening by interaction effect of religious affiliation and health locus of control among the treatment groups

Dependent variable	Religious affiliation	Health locus of control	Mean	Std. Error	95% Confidence Interval	
					Lower Bound	Upper Bound
Willingness to uptake Cancer of the Prostate screening	Christianity	Internal	16.009	.795	14.441	17.576
		External	18.011	.650	16.729	19.294
	Islam	Internal	16.528	1.062	14.433	18.623
		External	17.807	.889	16.054	19.561

Table 4.8c showed that participants who are of Christianity religious affiliation with external health locus of control obtained a higher mean score of ($\bar{x}$ =18.011) than the participants who are Christianity religious affiliation but with internal health locus of control with a mean score of ($\bar{x}$ =16.009). This shows that participants who are of Christianity religious affiliation with external health locus of control performed better than the participants who are of Christianity religious affiliation but with internal health locus of control. It then means that participants of Christianity religion affiliation with external health locus of control is better on uptake of Cancer of the Prostate screening than participants of Christianity religious affiliation with internal health locus of control. Also from the table, participants who are of Islamic religious affiliation with external health locus of control obtained a higher mean score of ($\bar{x}$ =17.807) than the participants who are Islamic religious affiliation with internal health locus of control with a mean score of ($\bar{x}$ =16.528). This shows that participants who are Islamic religion affiliation with external health locus of control performed better than the participants who are Islamic religious affiliation with internal health locus of control. It then means that participants with Islamic religious affiliation with external health locus of control is better on uptake of Cancer of the Prostate screening than participants with Islamic religious affiliation with internal health locus of control. The overall comparison shows that participants who are Christianity religious affiliation with external health locus of control had the highest mean, followed by participants who are of Islamic religion affiliation with external health locus of control. This means that religious affiliation with external health locus of control is the best for willingness to uptake Cancer of the Prostate screening.

Ho7a: There will be no significant 3-way interaction effect of treatment, health locus of control and religious affiliation on knowledge of Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant interaction effect of treatment, health locus of control and religious affiliation on knowledge of Cancer of the Prostate screening ($F_{(1,192)}$ = .142, $p>0.05$, $\eta^2=.001$); therefore, the hypothesis was accepted. This implies that the interaction effect of treatment, health locus of control and religious affiliation did not contribute significantly to the variation in participants' scores on knowledge of Cancer of the Prostate screening. The eta value of .001 shows that the interaction effect of treatment, religious affiliation and health locus of control had a contribution of less than 1% to knowledge of Cancer of the Prostate screening

Table 4:9a: Adjusted Marginal Mean showing the direction of difference in knowledge of Cancer of the Prostate screening by interaction effect of treatment, religious affiliation and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of Control	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
Knowledge of Cancer of the Prostate Screening	Experimental Group	Internal	Christianity	15.429	1.165	13.131	17.726
			Islam	15.000	1.541	11.960	18.040
		External	Christianity	16.217	.398	15.432	17.002
			Islam	16.172	.572	15.043	17.301
	Control group	Internal	Christianity	9.857	.412	9.045	10.670
			Islam	9.370	.593	8.200	10.540
		External	Christianity	9.091	.929	7.258	10.924
			Islam	10.000	1.258	7.518	12.482

Table 4.9a shows that participants in treatment group who are of Christianity religious affiliation with internal health locus of control obtained a higher mean score of ($\bar{x}$ =15.429) than the participants in treatment group who are of Islamic religious affiliation with internal health locus of control with a mean score of ($\bar{x}$ =15.000). This shows that participants in treatment group who are of Christianity religious affiliation with internal health locus of control performed better in knowledge of Cancer of the Prostate . Also from the table participants in treatment group who are of Christianity religious affiliation with external health locus of control obtained a higher mean score ($\bar{x}$ =16.217) than the participants in the same group who are Islamic religious affiliation and with external health locus of control with a mean score of ($\bar{x}$ =16.172). This shows that participants in treatment group who are of Christianity religious affiliation with external health locus of control performed better than the participants in treatment group who are of Islamic religious affiliation with external health locus of control. The overall comparison shows that participants who were exposed to Cancer of the Prostate education and are of Christianity religious affiliation with external health locus of control had the highest mean, followed by participants in the same group but who are of Islamic religious affiliation with external health locus of control. This means that Cancer of the Prostate education with Christianity religious affiliation and internal health locus of control is the best for knowledge of Cancer of the Prostate screening.

Ho 7b: There will be no significant 3-way interaction effect of treatment, health locus of control and religious affiliation on attitude towards Cancer of the Prostate screening among college of education male students in Oyo

The results presented in Table 4.2 showed that there was no significant 3-way interaction effect of treatment, health locus of control and religious affiliation on attitude towards Cancer of the Prostate screening ($F_{(1,192)}$ = .486, p>0.05, η^2=.003); therefore, the hypothesis was accepted. This implies that the 3-way interaction effect of treatment, health locus of control and religious affiliation did not contribute significantly to the variation in participants' scores on attitude towards Cancer of the Prostate screening. The eta value of .003 shows that the 3-way interaction effect of treatment, health locus of control and religious affiliation had a contribution of less than 1% to attitude towards Cancer of the Prostate screening

Table 4:9b: Adjusted Marginal Mean showing the direction of difference in attitude towards Cancer of the Prostate screening by interaction effect of treatment, religious affiliation and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of Control	Religious affiliation	Mean	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
Attitude Towards Prostrate Cancer Screening	Experimental Group	Internal	Christianity	33.143	1.616	29.955	36.330
			Islam	36.500	2.138	32.283	40.717
		External	Christianity	35.600	.552	34.511	36.689
			Islam	34.862	.794	33.296	36.428
	Control	Internal	Christianity	17.732	.571	16.605	18.859
			Islam	18.296	.823	16.673	19.919
		External	Christianity	17.273	1.289	14.730	19.815
			Islam	16.333	1.745	12.891	19.776

Table 4.9b showed that participants in treatment group who are of Islamic religious affiliation with internal health locus of control obtained a higher mean score of ($\bar{x}$ =39.143) than the participants in treatment group who are of Christianity religious affiliation with internal health locus of control with a mean score of ($\bar{x}$ =36.500). This shows that participants in treatment group who are of Islamic religious affiliation with internal health locus of control performed better in attitude towards Cancer of the Prostate . Also from the table, participants in treatment group who are of Christianity religious affiliation with external health locus of control obtained a higher mean score ($\bar{x}$ =35.600) than the participants in the same group who are of Islamic religious affiliation and with external health locus of control with a mean score of ($\bar{x}$ =34.862). This shows that participants in treatment group who are of Christianity religious affiliation with external health locus of control performed better than the participant in treatment group who are of Islamic religious affiliation with external health locus of control. The overall comparison shows that participants who were exposed to Cancer of the Prostate education and are of Islamic religious affiliation with internal health locus of control had the highest mean, followed by participants in the same group but who were of Christianity religious affiliation with external health locus of control. This means that Cancer of the Prostate education with Islamic religious affiliation and internal health locus of control is the best for attitude towards Cancer of the Prostate screening.

Ho 7c: There will be no significant 3-way interaction effect of treatment, health locus of control and religious affiliation on uptake of Cancer of the Prostate screening among college of education male students in Oyo.

The results presented in Table 4.2 showed that there was no significant 3-way interaction effect of treatment, health locus of control and religious affiliation on uptake of Cancer of the Prostate screening ($F_{(1,192)}$; = .392, p>0.05, η^2=.002); therefore, the hypothesis was accepted. This implies that the 3-way interaction effect of treatment, health locus of control and religious affiliation did not contribute significantly to the variation in participants' scores on uptake of Cancer of the Prostate screening. The eta value of .002 shows that the 3-way interaction effect of treatment, health locus of control and religious affiliation had a contribution of less than 1% to uptake of Cancer of the Prostate screening.

Table 4:9c: Adjusted Marginal Mean showing the direction of difference in uptake of Cancer of the Prostate screening by interaction effect of treatment, religious affiliation and health locus of control between the treatment groups

Dependent variable	Treatment Groups	Health locus of Control	Religion affiliation	Mean	Std. Error	95% Confidence Interval	
						Lower Bound	Upper Bound
Willingness to uptake Prostrate Cancer Screening	Experimental Group	Internal	Christianity	20.000	1.499	17.044	22.956
			Islam	21.500	1.982	15.590	25.410
		External	Christianity	23.750	.512	22.740	24.760
			Islam	23.446	.736	21.986	24.900
	Control	Internal	Christianity	12.018	.530	10.973	13.063
			Islam	11.556	.763	10.051	13.061
		External	Christianity	23.750	.512	22.740	24.760
			Islam	12.167	1.619	8.974	15.359

Table 4.9c showed that participants in treatment group who are of Islamic religious affiliation with internal health locus of control obtained a higher mean score of ($\bar{x}$ =21.500) than the participants in treatment group who are of Christianity religious affiliation with internal health locus of control with a mean score of ($\bar{x}$ =20.000). This shows that participant in treatment group who are of Islamic religious affiliation with internal health locus of control performed better in uptake of Cancer of the Prostate . Also from the table participants in treatment group who are of Christianity religious affiliation with external health locus of control obtained a higher mean score ($\bar{x}$ =23.750) than the participants in the same group who are of Islamic religious affiliation and with external health locus of control with a mean score of ($\bar{x}$ =23.446). This shows that participants in treatment group who are of Christianity religious affiliation with external health locus of control performed better than the participants in treatment group who are of Islamic religious affiliation with external health locus of control. The overall comparison shows that participants who were exposed to Cancer of the Prostate education and are of Islamic religious affiliation with internal health locus of control had the highest mean, followed by participants in the same group but who were of Christianity religious affiliation with external health locus of control. This means that Cancer of the Prostate education with Islamic religion affiliation and internal health locus of control is the best for uptake of Cancer of the Prostate screening among the participants.

4.3   Discussion of findings

The demographic information on religion shows that 134(67.0%) of the participants were of Christianity affiliation while 66(33.0%) of the participants of islam affiliation showing that of the participants belong to Christianity affiliation. The result of this study was in agreement with the assertion of study carried out by the University of Alabama as reported in (newswise.com, 2009) that men who reported engaging in religious behavior were found to be 1.7 times more likely to have had a DRE in the past 12 months even though, this study did not focus on either DRE nor PSA. Men who reported engaging in both religious beliefs and behaviors were 2.12 times more likely than other men to report thinking about having a DRE within the next six months. And, men who engaged in religious behaviors were 7.10 times more likely than those who did not engage in religious behaviors to report having an appointment for a DRE within the next six months.

The results was also supported by Holt, Lukwago, et al.,(2003) Religious involvement has been shown to be positively associated with cancer coping, adjustment, quality of life, and breast cancer–related knowledge, and cancer prevention behaviors such as dietary habits. The result was also in line with the findings of Reindl and Brown, (2004) which reported that those with religious affiliations were more likely to participate in screening than those without religious affiliations

On the research questions, it was found that there was low level of knowledge of prostate cancer screening among male students of the College of Education. This finding is consistent with the result of the study of Awosan, Yunusa, Agwu and Taofiq (2018) which revealed that there was low knowledge of prostate cancer screening among the respondents. This result could as well be as a result of lack of health education programme to create awareness and provide adequate knowledge about prostate cancer to the population. Also, in this study it was revealed that there was significantly negative attitude towards prostate cancer screening among male students of the College of Education. The result of the study is consistent with the one conducted in Uganda which revealed that the respondents expressed negative attitude towards prostate cancer screening (Nakandi, Kirabo, Semugabo, Kittengo, Kitayimbwa, Kalungi and Maena 2013) However, the result of study is at variance with the one conducted by Oranusi, Mbieri,

Oranusi and Nwofor (2012) which showed significant positive attitude towards prostate cancer screening among the respondents.

Summarily, findings from this study showed that there was low level of knowledge as well as negative attitude towards prostate cancer screening among male students of the College of Education. The result of the study is also in line with that of Akhigbe and Omuemu, (2009) which revealed that there was poor knowledge as well as negative attitude of health workers towards breast cancer screening a population in Benin-City. The result of the study is also in line with that of Oladimeji, Bidemi, Olufisayo and Sola (2010) which revealed that knowledge and risk perception of prostate cancer were low among the respondents. Poor knowledge of prostate cancer screening and negative attitude towards prostate cancer screening will discourage the uptake of prostate cancer screening among the respondents. This of course expressed the need for more public sensitization campaigns on prostate cancer screening utilizing both electronic and print media with the aim of early detection and treatment of the disease.

Hypothesis one: The result of hypothesis one revealed that there was a significant main effect of treatment on knowledge , attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo state, Nigeria. This implies that Cancer of the Prostate education was effective on knowledge of Cancer of the Prostate screening, attitude towards Cancer of the Prostate screening and uptake of Cancer of the Prostate screening among the participants, however, the pretest result shows that participants had no knowledge of Cancer of the Prostate screening, had negative and indifference attitude towards Cancer of the Prostate screening as well as the uptake of Cancer of the Prostate screening.

This finding is in line with Mohamed, Lamadah and Hafez (2022) a study conducted on improving knowledge and attitude of male and female medical students in Egypt who found that there is a statistical significant difference between student's pretest and posttest knowledge in the two experimental groups which indicated that the intervention applied in the study succeeded in improving the knowledge of students significantly. In agreement with these findings, a study in Jamaica by Interis, Andrews, Reuter, Londono, Claye, Aung, and Jolly (2022) revealed statistically significant improvements in women's knowledge of cervical cancer risk factors, symptoms, and

screening tests, and resulted in almost one half of participants contacted seeking screening after educational intervention. Previous studies by European Union (2010); Lam, Aggarwal, Cheung, Stewart, Darling, Lam, and Kavanagh, (2020) have also found improved compliance in the performance of screening programmes after participation in educational programmes. Face-to-face educational intervention was clearly useful in improving knowledge, forming the right attitude, also helps people to make informed decisions and increasing screening participation rates.

Furthermore, this study agrees with the finding of a study by Olatona, Odeyemi, Onajole and Asuzu (2012) revealed that a brief educational intervention regarding sickle cell disease is effective in significantly increasing knowledge and acceptance of screening for sickle cell trait. In their study, the proportion of respondents who had a good level of knowledge increased by 64.1%. This is further corroborated by the finding of a study carried out in Pittsburgh by Gustafson (2006) which showed that there was a significant overall knowledge gain after intervention; average score was 92% after education compared with 62% before education. Also, Thani, Eljack, Thani and Salama (2012) in their study done on school teachers concluded that the study intervention had a significant positive impact on women's knowledge about cervical cancer screening, they also observed that those exposed to educational sessions showed some improvement in their knowledge regarding Pap smear test.

The result also agrees with Odelola, Akintaro and Adisa (2012) who submitted that pre-marital screening is a public health initiative that has been used interchangeably with genetic testing. Genetic testing (DNA based tests) is used to test for genetic diagnosis of those who are vulnerable to inherited diseases. These tests could be performed at designated marriage consultation centres by doing simple blood test. The blood taken from the couple is used to do such test as Complete Blood Count (CBC), haemoglobin electrophoresis in addition to screening for HIV, Hepatitis B and C viruses. Genetic testing is used to test for genetic disorder such as sickle cell anaemia, cystic fibrosis, spinal muscular atropy, mental retardation, epilepsy and Down syndrome, among other diseases.

The findings of this study was also in line with Onasoga, Aluko, Diorgu, Yusuf, and Fadare, (2020) asserted that there is a remarkable lack of knowledge about cancer

screening among the population in Nigeria and this was further corroborated by National Cancer Society (2012) that treatment complexity and cost, death rate from Cancer of the Prostate are increasing daily due to attitudinal problem, beliefs, poor knowledge towards Cancer of the Prostate screening and poor management skills. The result of this study further corroborate the findings of Albers, Haj Mohammad, Husson, Putter, Pelger, Elzevier and Manten-Horst (2020) that most (57.8%) of the respondents did not know a person could have Cancer of the Prostate without manifesting the sign and symptoms of the disease. Thirty-six of the respondents disagreed that if someone has Cancer of the Prostate , it is already too late to get treated for it while 33.1% with the statement. It was further reported in the study that there was low knowledge levels among the respondents on Cancer of the Prostate screening methods and frequency of screening.

The findings of this study is at variance with the findings of Mbah-Omeje, Iyke and Amughe, (2022) that several studies in Nigeria show that most Cancer of the Prostate patients report at hospital with advanced disease but their awareness and knowledge levels on prostate are largely undefined. Additional studies also show that perception on self-vulnerability is low among African men and is associated with low awareness and knowledge levels on the disease

The findings of this study also agrees with the findings of Ports, Reddy, and Rameshbabu, (2015) that Uptake of cancer screening among Africans is poor as shown in a study done in South Africa which shows that in spite of knowledge of cervical cancer screening and the availability of such services, majority of women (87%) from higher social and educational backgrounds did not undergo cervical screening, though most patients resided within a 12-kilometer radius of a facility that either provided or could potentially provide screening. The findings of this study also shared similar thought with the result of a study by Soylar, Özer, Doğan Yüksekol, and Ulucan, (2020) which revealed that level of knowledge was not significantly associated with uptake because uptake was both poor among those with good knowledge and those with poor knowledge as only 14% of the respondents had undergone screening.

The findings of this study revealed that there was no significant main effect of religion on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State.

The finding of this study is in line with that of Iweriebor (2015) in a study on knowledge, attitude and practice of premarital/prenatal genetic testing among young people in Sapele Local Government Area of Delta State, the result of Iweriebor showed that less religious women tend to be more in favour of genetic screening and that religion does not affect people's knowledge, attitude and practice of pre-marital/prenatal genetic testing.

Hypothesis two: The result of hypothesis two revealed that there was no significant main effect of religion affiliation on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State, Nigeria. The result of this study is at variance with the findings of Holt, Lukwago and Kreuter (2003) which assert that there are a number of sociocultural factors that relate to prevention and screening behaviors that affect cancer morbidity and mortality rates. Religious involvement appears to be one of these factors. Religious involvement has been shown to be positively associated with cervical cancer and breast cancer–related knowledge and cancer preventive behavior such as dietary habits or healthy eating patterns as case maybe, and it has also been seen to be associated with cancer coping strategy, adjustment and improvement of quality of life. This also has been attributed to many individuals to look at their religious beliefs as fatalism in thinking about cancer and their chances of getting the disease, and coping with cancer if this does happen.

The finding of this present study did not also support the position of Blocker et al., (2006) who affirmed that the role of religious beliefs and church support emerged as being important in the context of Cancer of the Prostate prevention and screening behaviors. It was further reported that those with religious affiliations were more likely to participate in screening than those without religious affiliations. Researcher is of the view that the association between religious involvement and health may be due to factors such as increased health-related behaviors among religious individuals; the church providing a social network of support; religion providing meaning, social support, coping, and optimism; and providing an interpretive framework for distress or suffering among the members can be attributed to the change in behaviour.

The result of this present study disagrees with those of Reindl and Brown (2004) and Mann et al. (2000), who reported that religious involvement was associated with Cancer of the Prostate screening. Interestingly, religious beliefs and behaviors were not

predictive of any of the PSA behaviors. However, more work needs to be done to elucidate the role that religious beliefs and behaviors play in the lives of African American men. There may have been something unique about the social milieu of the church setting that is conducive to the digital rectal examination (DRE) outcomes, such as a social norm. A social desirability bias may have been operating. However, if this were the case, one would expect to see these patterns for prostate specific antigen (PSA) as well as for digital rectal examination (DRE).

The finding is also not in line with the findings of Gullatte, Brawley, Kinney and Mooney (2010) that sought to investigate if an individual's religion influences their attitude towards treatment of a cancer diagnosis, the researchers reported that the participants who were more likely to delay seeking medical treatment of their medical condition were those who were highly religious because they were more likely to talk to God before seeking treatment thereby causing an average of 3 months delay in seeking treatment for their medical condition

Hypothesis three: The result of hypothesis three revealed that there was no significant main effect of health locus of control on knowledge, attitude but was significant on uptake of Cancer of the Prostate screening. The reason for the result could be because health locus of control as a variable is more of psychomotor domain among the domains of learning, this suggests clearly why locus of control was not effective on knowledge of Cancer of the Prostate screening and attitude towards Cancer of the Prostate screening but was effective on uptake of Cancer of the Prostate screening simply because uptake is more of psychomotor domain than knowledge and attitude which are cognitive and affective in nature respectively.

This result of hypothesis three is in line with Bandura (1997) who stated that health locus of control influences the effort one puts forth to change risk behaviour and the persistence to continue striving despite barriers and setbacks that may undermine motivation. He stressed further that it is directly related to health behaviour, but it also affects health behaviour indirectly through its impact on goals as it influences the challenges that people take on as well as how high they set their goals. This result also corroborated Wallston and Wallston (2002) who stated that health locus of control has been shown to be related to whether an individual changes their behaviour and to the

kind of communication style they require from health professionals. Murray and McMillan (2003), also stated that behavioural modification is greatly influenced by locus of control. They further stated that individuals with internal health locus of control are more likely to modify their behaviour faster than those with external health locus of control. Murray and McMillan (2006) discovered that women with internal health locus of control adjusted well to breast self-examination and cervical screening than their external locus of control counterparts.

This is also supported by Wallston, Wallston and DeVellis, (2008) who stated that individuals with internal health locus of control (HLC) assume more responsibility for their actions and engage in health-promoting behaviour to a greater extent. Cooper and Fraboni, (2000) also stated that previous studies found that higher internal health locus of control (HLC) was positively associated with higher performance of regular physical activity while external HLC was negatively associated with it. Boyle and Harrison, (2001) were of the view that some experimental studies found no association between HLC and screenings for breast cancer or colorectal cancer.

Hypothesis four: The result of hypothesis four revealed that there was no significant interaction effect of treatment and religion affiliation on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State, Nigeria. The reason why there was no interaction effect of treatment and religion affiliation on knowledge, attitude and uptake of Cancer of the Prostate screening could be that the religious leaders in their various institutions were proactive enough to the reproductive health of their members. They could not just wait and watch them fall sick to preventable diseases claiming lives of many at the age they should be productive and enjoying what they have labored for before raising the issue of screening which prevent and also save life.

The result of hypothesis four disagrees with the findings of Chatters, (2000) who reported that religiosity is associated with lower levels of behavioral risks (e.g., alcohol use) and higher levels of health-promoting behaviors (e.g., diet, exercise) While religiosity is strongly associated with a wide range of positive health behaviors there is mixed evidence for the relationship between religiosity and cancer screening. Studies with population-based and community samples have found increased screening rates

among those who attend religious services. It also shared different view with the findings of Lukwago and Kreuter, (2003) who reported that cancer screening interventions are being designed for delivery in faith-based settings yet, not all studies have found increased screening among people who participate in religious services or faith-based interventions. It also further reported that few studies have examined the mechanisms through which religiosity impacts health behaviors, and there is a particular lack of information about its role in cancer screening.

Berkman and Glass (2000) also posit that social structures and networks found within faith-based settings may influence individual health attitudes and behaviors through the provision of social support. This present study shared different stand with the findings of Lee and Im (2013) who observed that the positive association between religious service attendance and social support differed across racial groups, but not for all types of screening. Overall, the association between religious service attendance and social support was stronger among non-Hispanic Blacks as compared to non-Hispanic Whites. Yet, this was true only for recent cervical cancer screening; there were no significant differences by race for recent breast or colorectal cancer screening. Although Black and White women demonstrate similar high rates of cervical cancer screening in national surveys, the socio-demographic characteristics that are associated with screening differ among these populations.

The finding was further corroborated by the findings of Omuemu, Obarisiagbon and Ogboghodo (2013) in a study on awareness and acceptability of screening of sickle cell disease among undergraduate students of the University of Benin, Benin City, Edo State, found that respondents' cultural and religious beliefs did not influence their decision to accept screening for sickle cell disease. The result of the estimated marginal mean of participants' religion on knowledge, attitude and uptake of Cancer of the Prostate screening shows that Christians has more knowledge of Cancer of the Prostate screening while Muslims have positive attitude towards Cancer of the Prostate screening and willingness to undergo Cancer of the Prostate screening. One would have expected that Christian participants will have more knowledge which they had, better attitude and uptake of Cancer of the Prostate screening because of numerous marriage seminars and counseling as well as special programmes they normally have. This may not be

unconnected with the fact that certain Christians folks tend to exhibit fatality attitude, that is, instead of subjecting certain things to reality check, some may choose to live in denial and say things like "I reject it in the name of Jesus, "I shall not die says the Lord of host" among others. There is a thin line between faith and delusion, in faith, reality testing is active; that is, you acknowledge that you are genetically incompatible or sick but believe in the power of omnipotence to make you healthy, whereas in delusion, reality testing is impaired.

Hypothesis five: The finding of hypothesis five revealed that there was no significant interaction effect of treatment and health locus of control on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State, Nigeria

The result of hypothesis five agrees with Meyers, Donham, and Ludenia (2002) who found that higher attendance at screenings for breast cancer was associated with either higher internal or external HLC. The result also share similar thought with Calnan, (2009) who concluded that higher attendance at screening for colorectal cancer was associated with lower external HLC but not related to internal HLC. Boyle and Harrison, (2001) were of the view that some experimental studies found no association between HLC and screenings for breast cancer or colorectal cancer. Having an internal locus of control has been associated with information seeking (Lefcourt and Wine, 2009), autonomous decision making (Sherman, 2003) and having a sense of well-being (Lefcourt, 2002). Having an external locus of control has been associated with depression (Naditch et al., 2005), anxiety (Feather, 2007) and being less able to cope with life stressors (Sandler and Lakey, 2002). More recent experimental research in health psychology has demonstrated a relationship between locus of control and performance of a variety of health-related behaviour (Nir and Neumann, 2001; Norman et al., 2008). Among these studies, findings suggest that internals tend to respond better than externals to programmes involving self-change (Saltzer, 2002; Weyer, 2009; Nir and Neumann, 2005).

Hypothesis six: The finding of hypothesis six revealed that there was no significant interaction effect of religion affiliation and health locus of control on knowledge,

attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State, Nigeria.

The finding of this study showed that there is no significant interaction effect of religion affiliation and health locus of control on knowledge, attitude and uptake of Cancer of the Prostate screening among college of education male students in Oyo State. This is an indication that religion does not significantly differ in their knowledge, attitude and uptake of screening. This is in line with the findings of Olatona, Odeyemi, Onajole and Asuzu (2002) that health education intervention did not have a significant impact on the attitude towards prenatal screening and fear of the religious convictions is the most probable reasons for negative attitude towards prenatal diagnosis. This finding is in line with that of Iweriebor (2015) in a study on knowledge, attitude and practice of premarital/prenatal genetic testing among young people in Sapele Local Government Area of Delta State, the result of Iweriebor showed that less religious women tend to be more in favour of genetic screening and that religion does not affect people's knowledge, attitude and practice of pre-marital/prenatal genetic testing. This position is corroborated by Palomaki (2006) who also found that less religious pregnant women tended to be more in favour of pre-marital genetic tests as a result of their interest and up-to-date knowledge on pre-marital genetic test and how to undertake such tests.

Hypothesis seven: The finding of this study in hypothesis seven showed that the interaction effect of treatment, health locus of control and religion affilaition on knowledge, attitude and uptake of Cancer of the Prostate screening is not significant among college of education male students in Oyo State.

The finding of this study is in line with Akintaro (2017) study on effect of genetic education using values clarification and analogy strategies on knowledge, attitude and uptake of pre-marital genetic screening among polytechnic students in Osun State who found that the interaction effect of treatment, gender and religion on knowledge and attitude is not significant but it is significant on uptake of pre-marital genetic screening. This is an indication that men are often left out of many important programmes in most religion setting in Nigeria which would have been of great importance to their well-being especially their quality of life which on the contrary focusing attention on women generality which makes them takes care of their reproductive health matter than men.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter presented the summary, conclusion and recommendations which were drawn based on the result of the findings. The contributions to knowledge as well as suggestions for further studies were made based on the identified limitations in this study.

5.1   Summary

The study investigated the effects of cancer of the Prostate education on knowledge, attitude and willingness to uptake cancer of the prostate screening among college of education male students in Oyo State, Nigeria. The study was carried out using randomized quasi-experimental research design of pretest-posttest control group type using 2x2x2 factorial matrix.

Two hundred participants were selected as sample for the study using multi-stage sampling procedures that involve purposive, simple random and volunteerism. The participants were placed in two groups; experimental and control group. Participants in treatment groups were exposed to ten weeks training using the manual developed by the researcher. Data were collected before and after the intervention programme using both self-developed and standardized questionnaire. Data was analysed using both descriptive and inferential statistics. The descriptive statistics used were frequency count and percentage while Multivariate Analysis of Covariance was the inferential statistics used to determine the main as well as the interaction effects of the independent, dependent and moderating variables

The study provided answers to two research questions and tested seven hypotheses each with three sub variables, making it twenty one sub variables. Four of the sub variables were rejected while the remaining seventeen were accepted. The result of the study shows that disease education was effective on knowledge of Cancer of the Prostate screening, attitude towards Cancer of the Prostate screening and willingness to uptake cancer of the prostate screening. The result also shows that health locus of control was significant on willingness to uptake cancer of the prostate screening but it was not

significant on both knowledge and attitude, also religion affiliation had no significant effect on knowledge, attitude and willingness to uptake cancer of the prostate screening.

5.2 Conclusion

Based on the findings of this study, it was concluded that Cancer of the Prostate education was effective on knowledge of cancer of the prostate screening, attitude towards cancer of the prostate screening and willingness to uptake cancer of the prostate screening. The study also concluded that the interaction effects of treatment and HLC as well as that of religious affiliation were not significant on knowledge of cancer of the prostate screening and attitude towards cancer of the prostate screening but health locus of control had effect on the willingness to uptake cancer of the prostate screening. It was also concluded that larger percentage of the college of education male students in Oyo State have poor knowledge of cancer of the prostate screening and negative attitude towards cancer of the prostate screening before the intervention.

5.3 Recommendations

In line with the findings of this study and the conclusion drawn thereof, the following recommendations were made:

1. The findings of this study revealed the need for health educators to have adequate training programme that will promote awareness and initiate campaign programme that will increase knowledge of cancer of the prostate screening.

2. It also revealed the need for effective dissemination of information and sensitization exercise that will promote better attitude towards cancer of the prostate screening and willingness to uptake cancer of the prostate screening which may lead to reduction in morbidity and mortality rate associated with late screening and late presentation of the disease.

3. Since, the adverse health effects of cancer of the prostate are preventable. Efforts to address this factor through practice, advocacy, and research will contribute to enhanced health conditions. Therefore, efforts to address these concerns by all stake holders in the health of male population (government, families, school authority etc) and improve better attitude towards cancer of the prostate screening and uptake of the screening will

not only lead to enhanced health conditions but will also contribute to quality of life of male population, families and society at large.

4. Cancer of the prostate education should be used by health teachers, researchers, health workers, public health professionals and practitioners as well as non-governmental organizations in order to promote zero cancer of the prostate prevalence among the male population.

5. Multidisciplinary and interdisciplinary research, which would inform the development of intervention strategies, is also needed. Both basic and applied research is necessary, as well as interdisciplinary collaboration to develop interactive models on human behavior, health, and illnesses.

6. Disease education which will include cancer of the prostate health education should be made a general programme at colleges of education.

7. Government should initiate a policy that will promote and encourage early cancer of the Prostate screening among the men population

5.4   Contribution to knowledge

1. Cancer of the prostate education contributed in no small measure to knowledge of cancer of the prostate screening, attitude towards cancer of the prostate screening and willingness to uptake cancer of the prostate screening.

2. Health locus of control is a variable to be considered in the willingness to uptake cancer of the prostate screening but do not on knowledge of cancer of the prostate screening and attitude towards cancer of the prostate screening.

3. Internal health locus of control was more effective on willingness to uptake cancer of the prostate screening among male college of education students in Oyo State, Nigeria

4. External health locus of control was more effective on knowledge and attitude towards cancer of the prostate screening while internal locus of control was more effective on the willingness to uptake cancer of the prostate screening

5.5   Suggestions for further study

Based on the findings and limitations of the study, the following suggestions are made

1. The study should be replicated on university students in Oyo State and Nigeria as a whole

2. The study should be replicated on male primary and secondary school teachers

3. Disease education should be used on other types of cancer screening

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Appendix I

EFFECTS OF PROSTATE CANCER EDUCATION ON KNOWLEDGE, ATTITUDE AND WILLINGNESS TO UPTAKE PROSTATE CANCER SCREENING AMONG MALE COLLEGE OF EDUCATION STUDENTS IN OYO STATE, NIGERIA

DEPARTMENT OF HEALTH EDUCATION, FACULTY OF EDUCATION,

UNIVERSITY OF IBADAN, IBADAN

Dear Respondent,

      This questionnaire is purposely designed for research study on effect of disease education on knowledge, attitude and uptake of Prostate can|cer screening among male students of Oyo State Colleges of Education, Nigeria. I solicit for your utmost co-operation in responding sin|cerely to the questionnaire items. Your responses will be for the purpose of this study and will be treated with utmost confidentiality. Your participation is voluntary and it is expected that the outcome of this study will be used to design appropriate intervention for male students of colleges of education. The outcome of this study may help relevant stakeholders in designing appropriate programmes on reproductive health of male in our colleges of education in Nigeria

Thanks for your cooperation.

Yours sincerely,

BALOGUN, O. J.

Researcher

Section A: Participant's detail

(Demographic Data)

Instruction: please tick (√) the appropriate option as it applies to you.

1. Level (a) 100 ☐ (b) 200 ☐ (c) 300 ☐

2. Age (a) 15-20 ☐ (b) 21-25 ☐ (c) 26-30 ☐ (d) 31 and 8above

3. Religion (a) Christianity ☐ (b) Islam ☐ (c) Traditional ☐ (d) Others ☐

KNOWLEDGE OF PROSTATE CAN|CER SCREENING SCALE (KCPSS)

Instruction: Please tick the appropriate option

Yes=3, No=2, I don't know=1

	Items	Yes	No	I don't know
4	One of the screening tests done to detect prostate can|cer is Prostate Specific Antigen (PSA)			
5	Prostate can|cer screening is done through Digital Rectal Examination (DRE) or through measurement of serum prostate specific antigen (PSA) levels			
6	PSA should be done every 2 years for a value less than 2.5ng/mL			
7	PSA test should be done yearly			
8	The chan|ce of having prostate can|cer goes up as the PSA level goes up above this value.			
9	Elevated PSA con|centration is seen in prostatic can|cer, benign prostatic hypertrophy, prostatitis, trauma (bicycle riding) and sexual activity			

Section C

ATTITUDE TOWARDS PROSTATE CAN|CER SCREENING SCALE (ATCPSS)

Instruction: please tick the appropriate option

SA=1, A=2, D=3, SD=4

	Items	SA	A	D	SD
10	There is no good value to derive in going for prostate can|cer screening enable one to know his prostate can|cer status				
11	Prostate can|cer screening is meant for men with multiple sexual partners				
12	Prostate can|cer screening is a waste of time				
13	prostate can|cer is a punishment for sin so there is no need to go for screening				
14	Nothing con|cern me about prostate can|cer screening				
15	Going for prostate can|cer screening is a waste of money				
16	Whether one goes for prostate can|cer screening or not, anyone that will die of prostate can|cer will still die of it				
17	There is no benefit in going for prostate can|cer screening				
18	I have more demanding health issue than to be bothering myself about prostate can|cer screening				
19	Prostate can|cer screening service is not even effective in early detention of prostate can|cer				

UPTAKE OF PROSTATE CAN|CER SCREENING SERVICE SCALE (UCPSS)

Instruction: please tick the appropriate option

SA=4, A=3, D=2, SD=1

s/n	Items	SA	A	D	SD
20	I am willing to go for prostate can|cer screening				
21	I will en|courage my male friends to go for prostate can|cer screening				
22	I will do prostate can|cer screening at any cost when it is time for me to do it				
23	I will go for prostate can|cer screening every two years on|ce I am 40 years				
24	It is a must for me to know my PSA level on|ce I am forty years of age				
25	I will advise that all men should go for prostate can|cer screening on|ce they are forty years of age				
26	I am so much con|cern about going for prostate can|cer screening on|ce one is 40 years and above				

Section E

Multidimensional Health Locus of Control Scale (MHLCS)

Instructions: Each item below is a belief statement about your behaviour with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item I would like you to circle the number that represents the extent to which you agree or disagree with each statement. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs and obviously, there is no right or wrong answer.

1=STRONGLY DISAGREE **(SD)**	4=SLIGHTLY AGREE **(A)**
2=MODERATELY DISAGREE **(MD)**	**5=**MODERATELY AGREE **(MA)**
3=SLIGHTLY DISAGREE **(D)**	6=STRONGLY AGREE **(SA)**

S/N	Internal Items	1	2	3	4	5	6
27	If my health worsens, it is my own behaviour which determines how soon I will feel better again						
28	I am directly responsible for my health getting better or worse.						
29	Whatever goes wrong with my health is my own fault.						
30	The main thing which affects my health is what I do myself.						
31	I deserve the credit when my health improves and the blame when it gets worse.						
32	If my health takes a turn for the worse, it is because I have not been taking proper care of myself						
	Powerful others						
33	Health professionals control my health						
34	Whenever I do not feel well, I should consult a medically trained professional						

35	Regarding my health, I can only do what doctor tells me to do						
36	Having regular contact with my physician is the best way to avoid illness						
37	My family has a lot to with my becoming sick or staying health						
38	Whenever I recover from an illness, its usually because other people have been taking good care of me						
	Chan|ce items						
39	Whenever I am healthy, it is the effort of my family						
40	Luck plays a big part in determining how soon I will recover from illness						
41	My good health is largely a matter of good fortune						
42	Most things that affect my health happen to me by accident						
43	No matter what I do, if I am going to get sick, I will get sick						
44	If it meant to be, I will stay healthy						

Appendix II

INFORMED CONSENT FORM FOR THE PARTICIPANTS

CONFIDENTIALITY

All information obtained from the participants were treated with utmost confidentiality.

VOLUNTARINESS

Only those who indicate genuine interest were allowed to take part in the study. Also, any participant is free to withdraw from participating at any point. However, the researcher will make every effort to ensure participants' wishes are complied with as much as practicable.

STATEMENT OF PERSON OBTAINING INFORMED CONSENT

I have given sufficient information about the study process to make informed consent.

DATE………………………….

SIGNATURE……………………………………………..

I have fully explained this research to ……………………………………………………

NAME…………………………………………………………………………………..

STATEMENT OF THE PERSON GIVING CONSENT

The research study has been well explained to me and I fully understand the study process. I understand that my participation is voluntary. I understand that I may freely stop being part of the study at any time. I am willing to take part in the progrramme.

DATE……………………………SIGNATURE……………………………………………

NAME……………………………………………………………………………………

**THE RESEARCHER FACILITATING A SESSION WITH A CROSS SECTION
OF THE PARTICIPANTS IN FCE (SPECIAL) OYO**

**THE RESEARCHER COMMUNICATING THROUGH SIGN LANGUAGE WITH
SOME HEARING IMPAIRED PARTICIPANTS IN FCE (SPECIAL) OYO**

THE RESEARCHER AND SOME RESEARCH ASSISTANTS WITH A CROSS SECTION OF THE PARTICIPANTS IN EMMANUEL ALAYANDE COLLEGE OF EDUCATIO, OYO DURING ONE OF THE SESSION

THE RESEARCHER WITH A CROSS SECTION OF THE PARTICIPANTS IN EMMANUEL ALAYANDE COLLEGE OF EDUCATIO, OYO

A RESEARCH ASSISTANT FACILITATING A SESSION WITH THE PARTICIPANTS IN FCE (SP), OYO

THE RESEARCHER WITH A CROSS SECTION OF THE PARTICIPANTS IN ONE OF THE SESSION IN EMMANUEL ALAYANDE COLLEGE OF EDUCATION

A RESEARCH ASSISTANT WITH A CROSS SECTION OF THE PARTICIPANTS IN EMMANUEL ALAYANDE COLLEGE OF EDUCATION, OYO DURING ONE OF THE SESSION

RESEARCH ASSISTANTS ADMINISTERING POST-TEST INSTRUMENT TO THE PARTICIPANTS IN EMMANUEL ALAYANDE COLLEGE OF EDUCATION, OYO

Personal Hygiene Education Package

Week One: General Orientation and Administration of Pre-test Instrument

Objectives of the session are the following:

I.   To state the purpose of the meetings.

II.   To explain the procedures to follow by trainers and the participants.

III. To administer the pre-test instrument on the participants.

Activity

Administration of pre-test on the participants, this will be preceded by explanation on the test and the procedure for responding to the items.

Week Two: Good Hygiene and Poor Hygiene Practices

Hygiene refers to the practices by which people maintain or promote good health by keeping themselves clean. Even in our contemporary society, good hygiene practices continue to be the primary disease-prevention strategy. Hygiene is one of the silent victories ever recorded by humanity. It has helped to drastically reduce the spread of disease. The amount of money that would have been spent on medical treatment and medication has been reduced by simple personal hygiene practice. Good hygiene is cheap and easy to practice. Good hygiene practices in|clude:

I.   Covering mouth and nose when coughing or sneezing

II.   Washing hands after coughing or sneezing

III. Washing hands after handling rubbish

IV. Washing hands after touching public installations or equipments

V.   Using soap to wash hands

VI.   Avoid the use of public towel

The most common unhygienic practices in|cluded:

I.   infrequent hand washing

II.   poor hand washing, especially prior to preparing meals

III.   hand contact with the face, mouth, nose, and hair during food preparation

IV.   inadequate or no attempt to clean surfaces during food preparation

V.   use of the same towel for hands, dishes, floors, and covering food.

Week Three: The Hygiene Barrier

A hygiene barrier gives us the freedom to experien|ce our lives and do so without the impediments of debilitating diseases or the tragedy of premature death. It is a direct result of the innovations brought about by the health and sanitary revolutions that have swept regions of the world. The hygiene barriers in|clude:

I.   Improved food quality
II.   Improved water quality
III. Improved home quality
IV.   Personal cleaning practices
V.   Hygienic environment

Through the combined benefits of improved food and water quality and home and personal cleaning practices, the hygienic quality of our environment dramatically reduces routine exposures to pathogenic microorganisms. This reduction in pathogen exposure results in dramatic reductions in infectious diseases and premature death. The barrier provided by sanitation and medical advan|ces is not perfect, it can be easily compromised. Exposure to disease-causing microorganisms can occur as a result of contact with an infected individual, consumption of contaminated food or water, contact with contaminated objects or surfaces, or inadequate personal care habits, all of which compromise the barrier. Understanding and implementing good hygienic cleaning can help reduce the risk of illness by maintaining a hygiene barrier that reduces these exposures.

Week Four: Pathogen Contact and Disease

Failure to properly take care of the hygiene barriers will allow invaders to make in|cursion into human body. Disease causing pathogenic organisms like bacteria and viruses exist in the different environmental media, viz: air, water and land. These diseases can spread to individuals through two main channels, direct and indirect contact.

Direct contact: This involves the transmission of disease causing agents through person-to-person, such as:

I.   contact with blood

II.   mucous

III. body fluids

IV.   fecal-oral routes

An individual can also contaminate one region of the body with microbial flora from another area. Other means of transmission in|clude direct contact with air-borne droplets produced by sneezing and coughing.

Indirect contact: This occurs by transmission through contaminated objects, usually the hands and other surfaces like cutting board, serving plates, e.t.c. For example, using a cutting board to prepare raw chicken, which can be contaminated with Salmonella, and then using the same cutting board to slice fresh fruits and vegetables. Also, an individual who changes a baby's diaper infected with cholera and then prepares a family meal without washing his or her hands could transmit the pathogen to others in the family. Indirect contact is a common mode of transmission, often responsible for E. coli outbreaks caused by consuming undercooked contaminated meat or other un|cooked foods.

Week Five: Examples of Diseases whose Transmission can be Mitigated by Personal Hygiene

The American Public Health Association (APHA) Handbook on Control of Communicable Diseases in Man lists lots of human diseases that can be transmitted from person to person (or from animals to persons) by contaminated hands or from soiled objects. These are the types of diseases for which improvements in personal hygiene and household cleanliness would lower the chan|ces of their spreading. They in|clude: Amebic Dysentery, Measles, Balantidiasis, Meningococcal Meningitis, Chicken Pox, Molluscum Contagiosum, Cholera, Paratyphoid Fever, Conjun|ctivitis, Pediculosis, Dermatophytosis (Ringworm), Pleurodynia, Epidemic, Diarrhea of Early Childhood,   Poliomyelitis,   Diphtheria,   Rubella,   Enterobiasis   (Pinworm),

Salmonellosis, Food Poisoning (E.coli, Staphylococcal), Scabies, Gastroenteritis, Viral, Shigellosis (Bacillary Dysentery), Hepatitis A, Staphylococcal Disease, Herpangina, Streptococcal Disease, Hydatidosis, Trachoma, Keratoconjun|ctivitis, Epidemic, Typhoid Fever, Larva Migrans, Typhus Fever, Lassa Fever, Verruca Vulgaris (Warts), Lymphiogranuloma Venereum, Yaws, Marburg Virus Disease.

Week Six: Hand Hygiene

Cleaning hands is very important in preventing infection. Studies have revealed that hand washing with soap prevents diarrhea and acute lower respiratory tract infections, which are the leading causes of childhood death globally. Hand washing with daily bathing was also shown to prevent impetigo. Public awareness about the importan|ce of personal hygiene has in|creased due to highly publicized and serious food borne illness outbreaks. These in|cidents have raised questions about food safety and the hygienic practices, particularly hand washing of food handlers. The con|cern extends to homemakers, child-care providers, educators, sales personnel, and those who have physical contact with the public. Despite public awareness, many people still do not wash their hands frequently enough, or may not wash it for a long enough time.

The major benefits of hand hygiene for the general public are the removal of infectious agents found on hands and spread by the fecal-oral route, from the respiratory tract, and from contaminated food. Hand washing is necessary before and/or after behaviours that are associated with microbial contamination, especially using the toilet, diapering, and preparing or eating food. For cleaning hands, there are generally three types of products available:

Plain Soaps

Generally, plain soaps do not kill microorganisms, but rather wash them off with the soap, with the help of friction and rubbing. As a result, the majority of micro organisms picked up in daily life are removed. Hand washing with plain soap and water for 15 seconds reduces skin bacterial counts by 50 to 90%, and washing for 30

seconds reduces counts by 90 to 99%. For general home use when household members are healthy, plain soaps are adequate for removing microbes

Antibacterial Soaps

In addition to washing off microorganisms, antibacterial soaps contain ingredients that actually inhibit the growth of and/or kill germs on the hands. They are detergent-based products, requiring traditional hand-washing with water. Some are also used for face and body washing. Antibacterial soaps can also reduce bacteria on the skin and the rates of superficial skin-related infections.

Hand Sanitizers (non-soap products)

Hand sanitizers are non-detergent-based antibacterial products in the form of hand rinses, gels, or wipes, which usually contain alcohol as the antibacterial ingredient. They rapidly kill a broad spectrum of microbes, in|cluding bacteria, viruses, and fungi. However, they are not effective against bacterial spores. They can be used when no running water or towels are available. These products are not a substitute for hand washing, especially when hands are visibly soiled because they are not good cleaning agents.

<center>**Week Seven: Hand Washing Procedures**</center>

The skin is the most important and first-line barrier to infections because it has natural antibacterial properties. Hen|ce, it is vital that hands be kept as clean and healthy as possible. Some soaps, when used excessively for hand washing, can alter the skin's antibacterial properties by changing its pH. They do this by reducing fatty acids and, subsequently, the microbial flora. The skin's water content, humidity, pH, intracellular lipids, and rates of shedding each play a role in retaining the skin's protective barriers. However, very frequent hand washing with soaps, can cause dry skin, irritation, cracking and other problems. Despite the fact that frequent and proper hand washing practices are important in preventing infection, some people still do not wash hands often or long enough. Whereas, it is especially important to wash your hands:

I. Before, during, and after you prepare food

II. After you use the toilet

III. Before you eat

IV. After handling animals or animal waste

V. When your hands are dirty

More frequently when someone in your home is sick, it's also important to use the proper procedure:

I. Wet your hands and apply a liquid or a bar soap. Bar soap should be placed on a rack and allowed to drain.

II. Rub your hands vigorously together and scrub all surfaces.

III. Continue for 10 to 15 seconds, the soap combined with the scrubbing action helps dislodge and remove germs.

IV. Rinse well and dry your hands.

When to Use Hand Sanitizers and Antibacterial Soaps

Sin|ce hands serve as one primary mode of fecal-oral and respiratory transmission of microbes, an antibacterial soap or hand sanitizer should be used when an individual is:

I. In close physical contact with high-risk individuals e.g., infants, the very old, or people with weakened immune systems.

II. Infected with an organism and may potentially transmit the organism by the direct contact route e.g., diarrhea, upper respiratory infection, skin infections.

III. In close contact with an infected individual.

IV. Working in a setting where the spread of infectious disease is likely e.g., food preparation, or crowded living quarters, such as chronic-care residen|ces, prisons, child-care centers, and schools, in|cluding preschools.

Hand sanitizers may be most practical to use in the following circumstan|ces:

I. When immediate antibacterial activity is needed.

II. After en|counters that result in a high probability of contamination.

III.   Where soap, running water, and/or clean towels are not readily available.

Week Eight

Review of Previous Sessions and Administration of Post-test Instrument

Objectives

At the end of the session, participants should be able to:

I.   Summarize what they had learnt from the training programme.

II.   Show whether they are willing to do more of their decisions.

Activity

Overall review of the training programme is done. Post-test instrument was administered on the participants. The response obtained will serve as the post-test scores.