SOCIAL DETERMINANTS OF EARLY SCREENING FOR PROSTATE CANCER: A STUDY OF NAIROBI COUNTY, KENYA

BY

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2023

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A Thesis submitted in Partial Fulfillment of the Requirements of the Degree of Master of Arts in Sociology of the Department of Humanities and Social Sciences, Rongo University

2023

DECLARATION

This thesis is my original work and has not been presented in any other University/ Institution for any award.

Signature…….. Date……

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APPROVAL BY UNIVERSITY SUPERVISORS

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DEDICATION

I dedicate this work to my mum Jane Osewe and my grandma Philgona Okwiri.

ACKNOWLEDGEMENT

I first acknowledge the hand of the Lord in making it a reality, that despite the challenges, He came through at the eleventh hour. Special gratitude goes to my supervisors, Dr. Taji Shivachi, and Dr. John Sibuor for their availability, patience, and guidance throughout the study. I also wish to thank Prof. Wilson A. P. Otengah, Dr. William Omollo and Dr. Sharon Onditi for their scholarly advice and support.

I appreciate Kenyatta National Hospital, Kenyatta University and Referral Hospital, staff for their contributions not forgetting the Community Health Workers and Public Health Officers. My appreciation also goes to the research assistants and study participants. Without them this study would not be possible. I am also grateful to my fellow students Mc Donald Odhiambo, Calvince Ouko, Tabitha Awuor, Maureen Mwende and Beatrice Odima for the unwavering support throughout the study.

ABSTRACT

Prostate cancer (PCa) is a major global public health concern, and is the second leading cause of death after lung cancer among men worldwide. The government of Kenya has put in place measures to increase uptake of PCa screening services. However, the uptake remains low, even in the study area, which has resources to conduct PCa screening. This study sought to investigate the social determinants of PCa early screening in Nairobi County. It specifically aimed to determine the knowledge on PCa screening; examine the attitudes on PCa screening; and establish the influence of socio-demographic factors on PCa screening among men. The study was conducted in Nairobi County, Kenya, and was guided by Gelberg-Andersen's Behavioural Model for Vulnerable Populations. The study adopted mixed method approach and a cross-sectional survey design. A semi structured questionnaire, interviews, and focus group discussions were used for data collection. The population of males aged 35 – 50 years was 440,497 from which a sample of 384 were selected as the main respondents using Fischer et al (1998) formula, and arrived at using the multi-stage sampling procedures. Data from main respondents was complemented by information from 15 Key Informants who were purposively selected based on their bird's eye view of the research problem. Quantitative data was analyzed using the statistics package for social sciences, and presented in tables and charts. Qualitative data was analyzed thematically, and presented in narrative form. All ethical principles were observed. The study found that knowledge on specific aspects of PCa was generally low. Most of the respondents were unfamiliar with PCa early symptoms, as well as prevention strategies. The study attributes the low levels of knowledge to the fact that social media, which has been found to be distortional, was one of the key sources of information on PCa. The study further established that most of the respondents (95.93%) had not been screened for PCa. Reasons for not screening included: lack of symptoms and thus no need for screening (72.8%), cost of screening (62.6%), fear of cancer (53.3%) and no family history (53.1%). Level of education had no positive association with screening, whereas religious affiliation and marital status had weak association. On the other hand, occupation had a strong and positive association with uptake of PCa screening. The study established there was low uptake of screening due to low knowledge levels, negative perception towards cancer disease and cost of screening services. The study recommend that the Ministry of Health should set a day for PCa to sensitize men on PCa. It also recommends the Ministry of Health to develop policies that make it mandatory for patients to go through treatment literacies before any services. The Ministry of Health to Ministry of Health to develop a policy to allow for waiver on medical covers.

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LIST OF ABBREVIATIONS

ACS	American Cancer Society
CHWS	Community Health Workers
CRUK	Cancer Research UK.
FGDs	Focus Group Discussions
HIV	Human Immuno-deficiency Virus
IARC	International Agency for Research on cancer
KDHS	Kenya Demographic and Health Survey
KII	Key Informant Interviews
KNBS	Kenya National Bureau of Statistics
NHIF	National Hospital Insurance Fund
PCa	Prostate Cancer
PHOs.	Public Health Officers
PLWHA	People living with HIV and AIDs
PSA	Prostate-specific antigen
UN	United Nations
WHO	World Health organization

OPERATIONAL DEFINITION OF TERMS

Awareness: Refers to the general knowledge of the existence of prostate cancer.

Early Screening: This refers to specific medical tests that are conducted before the onset of a non-communicable disease, typically to detect either the likelihood of contracting the disease, or to detect the disease at an early stage. In the case of this study, early screening for PCa occurs before the age of 50 years.

Health-seeking behaviour: This refers to deliberate actions by individuals, taken with the aim of preventing or treating a disease.

Knowledge of Prostate cancer: Refers to the ability to identify causes, symptoms, risk factors and preventive measures for prostate cancer.

Prostate cancer prognosis: This term refers to the likely outcome of prostate cancer treatment, including the likelihood of cure.

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Prostate cancer (PCa) is a major global health concern, and the most common type of cancer among men (Adeloye, David, Aderemi, Iseolorunkanmi, Oyedokun, Iweala, Omoregbe & Oyo, 2016) and the second leading cause of death among men worldwide (American Cancer Society [ACS], 2017). Although all men are at risk of getting PCa, it is very rare in men younger than 40 years, with the chances of increasing rapidly after the age of 50 years (ACS, 2017). According to World Health Organization (2018), social determinants are the circumstances in which people are born, grow, live, work and age. They include factors like socioeconomic status, education, physical environment, and social support networks as well as healthcare accessibility. Social determinants to early screening include: Knowledge about the disease Perceptions and attitudes about cancer screening which may be influenced by culture and socioeconomic factors. (Hernandez & Blazer, 2016).

The lifetime risk of being diagnosed with PCa peaked to 1 in 5 between 2012 and 2017 (Cancer Research UK, 2018; Oladimeji, Olusifayo & Bidemi, 2019). In 2016, it was estimated that PCa was 29 % of newly diagnosed cancers in men, with nearly half of this population expected to die from the disease (ACS, 2017).

It is worth noting that PCa-related morbidity and mortality is highly disproportionate, with developing countries bearing the brunt of the disease (Sharma, 2015). In 2019, prevalence of PCa in several developed countries especially Canada, the United States, United

Kingdom, and Italy decreased, while that of Asian and African countries increased (World Health Organization [WHO], 2019). WHO (2018), estimated the rate of PCa to be 10.5% and 4.5% of the total male population below the age of 70 years in East and South-Central Asia, respectively.

Sub-Saharan Africa (SSA) reports highest incidence rates of the disease at 32.3 % with mortality rates at 18.4% (ACS, 2018). Tanzania reports PC as at .89% of the total deaths with an incidence rate of 36.89 per 100,000 and among the top 10 leading causes of deaths. (WHO, 2018). According to Katabalo (2022), the prevalence of Prostate Cancer in Uganda was at 39.84%

With 7% of all deaths nationwide each year, cancer ranks third in Kenya after infectious and cardiovascular diseases as the primary cause of death. PCa accounts for 9.4% of all cancer-related mortality, after breast cancer (23.3%) and cervical cancer (20%) (Wambalaba, Wambalaba, Nyong'o, & Nyong'o, 2019). Indeed, the incidence of PCa in Kenya more than tripled between 2010 and 2017, from 546 to 2,127 (Mutua, Pertet, & Otieno, 2017; Republic of Kenya 2019).

The variation in prevalence of PCa between developed and developing countries has been attributed to various factors, including higher poverty levels, dietary and genetic difference. (Taitt, 2018). These factors are compounded by resource limitations in healthcare systems in developing countries which render the management of PCa very difficult. These limitations include lack of affordable, community-based screening and health promotion programs, late presentation of patients at health facilities (usually at advanced stages of the

malignancy), fewer options of treatment, high cost and/or inaccessibility of suitable drugs, lack of adequate follow-up, among others (Bosland, Shittu, Ikpi & Akinloye, 2023).

The disproportionately high rate of mortality associated with PCa in Africa has also been attributed to late detection (WHO, 2015). Like most other cancers, symptoms of PCa only present themselves during later stages of the disease's development, during which treatment outcomes are typically poor, especially in developing countries with weak healthcare systems (WHO; 2015; Azubuike & Okwuokei, 2016).

According to WHO (2015), PCa is easily treatable when detected early, but its prognosis worsens as it develops into later stages. Unfortunately, like other cancers, the early stages of PCa are asymptomatic. Early screening and early diagnosis are the most efficient PCa intervention methods. (ACS, 2017; WHO, 2015) According to Cancer Research UK (2018), men aged between 35 and 50 years should screen for PCa at least once every year. However, there is general consensus that cancer screening results in early diagnosis, which improves its prognosis by slowing down or curbing the disease's development thereby reducing morbidity and mortality rates (WHO, 2018). The WHO urges nation states to support and facilitate early screening for prostate and other cancers (WHO, 2015).

In response to the call by WHO, several governments have put in place structures to facilitate early screening for PCa. This is especially so for developed countries and some Asian countries such as Bangladesh (Salam, 2015). In Africa however, many countries are yet to establish PCa screening programs, structures and systems. In Nigeria for instance, PCa screening is largely driven by the media, because there is no active screening program organized by the government (Ajape & Babata, 2017). Similarly, in South Africa,

although there are national cancer registries for breast and cervical cancers for women, none exists for PCa, with no well-established or structured PCa screening programs.

In Kenya, there exist policies accompanied with several PCa screening tests. The Kenya National Cancer Control Strategy of 2017 – 2022 was also enacted to champion for the rise in funding for the development of cancer-related initiatives (MOH, 2018). This was followed by the Cancer Act 7 (2012, amended in 2015), which provides for the establishment of a national cancer institute and the decentralization of prevention and treatment activities through the counties. The National Guidelines for Cancer Management were later enacted in 2013 to highlight the standard operating procedures that medical practitioners should follow. In 2015, Kenya's public insurer, the National Health Insurance Fund (NHIF), established an insurance cover of up to Ksh. 5,000,000 for cancer patients who need urgent treatment outside the country. In October 2016, NHIF reviewed the policy to encompass cancer care across country and to alleviate lengthy wait times in hospitals that participate in NHIF. Furthermore, several campaigns and awareness programs have been implemented in Kenya to raise awareness and promote early screening and detection of PCa among men below the age of 50 years. In Nairobi, the county government has partnered with Africa Cancer Foundation to continuously conduct cancer awareness campaigns to encourage early screening for early diagnosis and treatment (Nmoh, 2019).

Kenya has also adopted PCa screening tests which include serum Prostate-Specific Antigen (PSA) concentration, a blood test, Digital Rectal Examination (DRE), a physical examination; and the transrectal ultrasound (TRUS) and random ultrasonically guided multiple prostatic biopsies (RUMPB) which are both ultrasound-based. The availability of

PCa screening resources, especially in Nairobi, and consistent awareness campaigns that encourage screening have not been successful in increasing the rate of men who screen for PCa, as evidenced by the fact that only 6% have been screened in Nairobi (Kenya National Cancer Screening Guidelines, 2018).

Studies that have been attributed to the low uptake of PCa screening in Africa are categorized into : 1) client related; 2) healthcare provider barriers and 3) system-related barriers. Client-related barriers are the social factors that hinder men in Africa from participating in screening for PCa. Some of these have been identified as inadequate knowledge about cancer screening, (Hernandez & Blazer, 2016); and perceptions and attitudes about cancer screening which may be influenced by culture and other socioeconomic factors. Healthcare practitioner barriers are barriers bar patients from screening for PCa, while system-related barriers are the factors within the healthcare system that might discourage men from screening (James et al., 2017). It is also noteworthy that most studies tend to focus on healthcare provider and health system barriers, with social factors receiving little attention.

In Africa however, many countries are yet to establish PCa screening programs, structures and systems. In Nigeria for instance, PCa screening is largely driven by the media, because there is no active screening program organized by the government (Ajape & Babata, 2017). Similarly, in South Africa, although there are national cancer registries for breast and cervical cancers for women, none exists for PCa, with no well-established or structured PCa screening programs.

The relevance of social determinants is very prominent in a place like Nairobi County, where there appear to be adequate facilities for PCa screening, yet the rate of the same is still very low at 32.1 per 100,000 people as compared to Mombasa at 16.3 and the lowest Kakamega at 3.2 (KEMRI: Kenya National Cancer Registry, 2019) This study filled this gap by investigating the social determinants of PCa early screening among men in Nairobi County, Kenya.

1.2. Statement of the Problem

PCa is a killer disease whose cause hasn't been found. Once it gets to stage three it will spread to other organs of the body and kill. This in turn leads physiological, social and economic implications for families and society at large. For instance, the side effects of treatment interfere with the intimate relationship between couples and in turn disrupt the dynamics within the couples. (Collaco, Wagland, Alexis, Gavin, Glaser, & Watson) There's evidence that if detected early in stage one it can be eradicated, stage two managed. (American Society, 2018), thus the only way to detect it, is through early screening. (Roberts, Wilson, Stiel, Casiano, & Mongomery, 2018). Men are encouraged to screen early between ages 35-50 years since this is the age of productivity, they are actively engaged in politics and raising their children. Inorder to achieve this, interventions such as Kenya National cancer Control Strategy 2011-2016 to advocate for increased investments to improve services, National Guidelines for Cancer Management Kenya highlighting treatment procedures. Nairobi County also has the highest number of health facilities that offer cancer screening services, compared to other counties. 12 facilities of which 7 are private hospitals, 2 mission hospitals and 3 public hospitals (Makau-Barasa, Greene, Othieno-Abinya, Wheeler, Skinner, & Bennett, 2020). The County is also home to three

referral hospitals that offer screening services - Kenyatta National Teaching and Referral Hospital (KNTRH); Kenyatta University Teaching and Referral Hospital (KUTRH); and Mama Lucy Kibaki Referral Hospital (MLKRH); in addition to several level five private hospitals such as the Nairobi, Aga Khan, MP Shah, Mater and Nairobi Women's.

Despite the interventions made by the Ministry of Health and Non-Governmental Organizations to ensure screening of PCa among men at high risk in Kenya, the level of screening remains low, at 3%, 4.3% and 2.6% among men aged 15-49 years, 40 – 44 years and 45 – 49 years respectively (KDHS, 2019). The Age-Standardized Incidence Rate (ASR) of 40.6 per 100,000.

This points to the high likelihood of social factors coming into play, to influence early screening for PCa. This study therefore sought to investigate the influence of social determinants on PCa screening among men aged in Nairobi County, Kenya.

1.3 Purpose of the Study

The purpose of this study was to investigate the social determinants of PCa screening among men in Nairobi County.

1.4 Specific Objectives

The study sought to realize the following specific objectives:

1. To examine the knowledge of PCa among men in Nairobi County;
2. To examine attitudes on PCa screening services among men in Nairobi County;
3. To establish the influence of sociodemographic factors on prostate cancer screening among men in Nairobi County.

1.5 Research Questions

The study sought to answer the following research questions:

1. What is the level of knowledge on PCa screening among men Nairobi County?
2. What are the attitudes on PCa screening services among men in Nairobi County;
3. How does sociodemographic factors influence PCa among men in Nairobi County?

1.6 Justification of the study

PCa contributes markedly to morbidity and mortality in Kenya and is expected to keep rising due to an increase in risk factors. This in turn leads to social problems such as poverty, social ills, divorce in families and even death due to the high cost of treatment. Currently, NHIF can catter for Ksh. 25,000/= per patient which is usually more and may force patients to rely on fundraising form families or well-wishers. Early screening will enable men not only detect the disease early, but also know measures to take in order to live healthy. This will in turn boost productivity, psychosocial and physiological stability.

1.7 Significance of the study

The results of this study will help government policy makers to develop health measures and programs aimed at promoting knowledge levels on PCa and encourage behavioral changes towards avoiding risks for the development of PCa in men. The findings of this study will be useful in developing policies for encouraging knowledge, awareness and screening among men younger than 50 years which have been neglected. The study may also help in designing noble screening strategies for PCa across the country, as early screening for PC has been shown to contribute significantly to the management of the disease. It is also expected that the data and information generated will be used by local

cancer bodies, the Kenya National Cancer Control strategy, the Kenya Cancer association, academicians, scientists and medics for reviewing policies for control and prevention of PCa in rural Kenya and among men of different socio-economic backgrounds. The study's recommendations for increasing screening uptake and fostering the spread of PCa knowledge should considerably enhance PCa's effective and efficient healthcare at all phases. The study will also advance to the corpus of of knowledge on PCa awareness level among men and be used as literature source for future researches on the related topics.

1. 8 Scope and Limitation of the Study

The study was limited to investigating the social determinants of PCa early screening among men in Nairobi County. Demographically, it was limited to 384 men aged between 35 and 50 years and 15 key healthcare workers as key informants. Theoretically it was limited to Gelberg-Andersen & Leake model for vulnerable populations. Methodologically the study was limited to exploratory/descriptive sectional survey using questionnaires, interview schedules and FGD guides. Covid –pandemic was a limitation to the study. Respondents were afraid to sit in groups for fear of being arrested. This also affected formation of focus group, but the researcher managed to convene them by observing social distance, issuing masks and sanitizers.

CHAPTER TWO
LITERATURE REVIEW

2.1. Introduction

This chapter examined literature related to the study. The review was presented thematically, as guided by study objectives which were: knowledge on PCa screening among men in Nairobi County, attitudes towards screening uptake and sociodemographic factors influencing uptake of screening among men. This chapter also explained theoretical as well as the conceptual framework that guided the study.

2.2. Knowledge of Early Screening for Prostate Cancer

According to Li, Nong, Wei, Feng and Luo (2016), knowledge is a predominant factor in influencing health service utilization and play an important role in prevention and control of a disease. (Legesse, Nigussie, Girma, Geleta, Dejene, Deriba, Geleta, Hailu, Midaksa, Worku, Tessema & Negash, 2022).

Ogunsanya, Brown and Odedina (2017), conducted a cross-sectional study in Austin, Texas to assess knowledge of 267 black men aged 18 to 40 years on PCa screening and its associated factors. This was operationalized and revealed that knowledge was low on risk factors among the study cohort. Low knowledge could be attributed to sources of information used. Studies where healthcareworkers were sources of information exhibit moderate level of knowledge are studies. This is an indication of the fact that the government has made efforts to ensure their dissemination of information in health facilities. However, the moderate efforts could be attributed to the high workload in public hospitals. (Maladze, Maphula, Malulek & Makhado, 2023) and also the fact that patients consult healthcare workers when is sick or other remedies fail.

Alothman, Altamimi, Alhenaki and Alateeq (2022) conducted a cross-sectional study in Saudi Arabia to assess the knowledge and attitude towards prostate cancer and screening practices among males in Saudi Arabia. The study revealed that the major source of knowledge about PCa was social media while healthcare providers were the least. A similar study conducted by Sakala, Kasongo and Mwanakasale (2020) in Zambia found healthcare workers were the main sources of information, but this was attributed to the fact that majority of the respondents were above 60 years. High knowledge could be attributed to level of exposure. Probably at this age men have already started having symptoms and when they go for screening it turns out they have PCa. Could also be that they were screened because they considered themselves to be at risk. According to Agbugui, Obarisiagbo and Ugiagbe (2014), in Nigeria to assess awareness and knowledge of prostate cancer among men in Benin City, Nigeria. Majority of the men mentioned age as risk factor of PCa which indeed showed high awareness.

The reviewed study looked at the black men aged 18 to 40 years living in a developed country, where accessibility of health information and knowledge was high and cannot be compared to Nairobi County which is in a developing Country with low accessibility to health information and reliable sources of information is mass media.

Wiafe, Mensah, Bangalee and Oosthuizen (2021) on the other hand conducted a mixed-method systematic reviews in Ghana on knowledge of prostate cancer presentation, etiology and screening practices among women. The study revealed that there was moderate knowledge on signs and symptoms of PCa, However the study focused on women's view while this study will focus on men's views. This could be attributed to the

fact that even though women are better healthcare seekers than men and would pay attention to every detail related to treatment, they are limited with knowledge towards the condition and misconception about the condition as caregivers (Owoo, Ninnoni, Ampofo and Seidu, 2022)

Wanyagah (2014), conducted house-hold cross-sectional descriptive study in Nairobi County to evaluate the awareness and knowledge levels perception of PCa self-vulnerability and uptake of PCa screening of among men 581 of 30 to 73 years. The study revealed that majority had good knowledge levels on PCa which was influenced by high education levels. Maladze, Maphula, Maluleke and Makhado (2023) highlighted that low knowledge limits ability to decision making and this in turns leads to low screening rates.

2.3 Attitudes Towards Early Screening for Prostate Cancer

Attitude is a determinant of individual health behaviours. Positive attitude is associated with high level of knowledge. (Nwagwu, Ibebuike & Nwokike, 2020)

Morlando, Pellulo and Giuseppe (2017), conducted a cross-sectional study in Italy to evaluate the knowledge, attitudes and behaviours towards prostate cancer and its prevention. The study revealed a high number willing to undergo screening in the future. Willingness to go for screening was associated with income and health insurance. These two determines ones accessibility to seek for treatment since depending on the outcome, one is able to proceed with treatment and this was highlighted by (Ojewola, Oridota, Balogun, Ogundare, Alabi, Banjo, Laoye, Adetunmbi, Adebayo & Oluyombo, 2017) who posit that willingness may be there, but no means to do so.

Baker (2008), conducted a study in South Florida to assess PCa screening intention among African American Men. The study revealed fear of the PCa and fear of the process of screening as an important factor in influencing prostate cancer screening. Fear could be attributed to myths and misconceptions that could in turn lead to stigma. (Price, Calvin and Smith, 2013). Kinyao and Kishoyian (2018) also highlighted that myths and misconceptions can be eradicated is through treatment literacies.

So, Kai, Tang, Lee, Shiu, Ho, Chan, Lam, Goggins, and Chan, (2014) on the other hand, carried out a study in China on uptake of PCa screening and associated factors among Chinese men aged 50 years. The study revealed that doctor's recommendation as one of the main reasons for screening. The study further revealed misconceptions towards benefits of screening. The study however looked at men aged 50 years who had started having symptoms of PCa. The present study was aimed at encouraging men to go for early screening.

Kpatcha, Darre, Sewa, Sikpa, Botcho, Padga, Leloua and Tengue (2022) conducted a study in Togo to assess Prostate Cancer Screening by General Practitioners. Family history has been found to be motivator in health seeking behavior. (Adibe, Aluh, Isah & Anosike, 2017), yet there are other risk factors that are associated with PCa like lifestyle (ACS, 2021)

Bugoye, Leyna, Moen and Mmbaga (2019) conducted a population-based cross-sectional study in Dar Es Salaam, to assess knowledge, perceived risk and utilization of Prostate Cancer Screening Services among men. The study revealed that utilization of screening services was associated with low income, younger age, and low perceived risk of prostate

cancer. An indication that there are still more sensitization to encourage men to screen early before PCa gets to malignancy stage.

Mbugua, Oluchina and Karanja (2021), conducted a cross-sectional study in a rural community in Kenya to assess uptake of PCa screening and associated intra-personal factors among men aged 40-69 years. The study revealed a significant association between high socioeconomic status and screening. However, the study did not look at other socioeconomic parameters such as income level and cost of screening.

2.4 Influence of Sociodemographic factors on uptake of Early Screening Prostate Cancer

Dickey, Cormier, Whyte and Ralston (2015), conducted a cross-sectional secondary analysis study in the US to examine interpersonal and community factors associated with PCa screening among African- Americans aged 40 years and above. The study revealed that higher levels of education were positively correlated with receiving PCa screening. High level of education enables one make an informed choice. (Maladze et al, 2023) since he will be able to know what symptoms to look for and the preventive measures. Evans et al (2007), found that high knowledge was associated with lower intentions to screen. This could have been attributed to fear of the outcome or even fearing the costs to be incurred or even stigma that comes with how they will be perceived.

Mbugua, Oluchina and Karanja, (2022), conducted a study in Kiambu County to assess the effectiveness of community-based health education intervention on Prostate Cancer Knowledge, self-vulnerability, fatalism and screening. The study revealed that there was no

strong association between religion and PCa screening behaviour. However, this study was conducted in a rural set up and may not be generalized in an urban set up.

Ojewola et al (2017), conducted a descriptive cross-sectional study in Nigeria among community-dwelling men. The study revealed a high association between occupation and PCa screening behaviours. High income levels enables one afford covers which in turn enable them to access treatment. Sritharan, MacLeod, McLeaod, Peter and Demers (2018), conducted a quantitative research study in Canada to assess Prostate Cancer risk by occupation in the Occupational Disease Surveillance System (ODSS). The study revealed elevated risks among those men who were employed simply because of the exposures, sedentary life, psychological stress and shift work and these are risk factors to PCa (ACS, 2017).

Marital status influences the drive to undergo testing (Enaworu & Khutan, 2016). However, men have also been found to lag behind when it comes to healthcare matters (Olarewaju, Akinola, Oyekunle & Adeyemo, 2020) and this is because their socialization affects their decision making to seek healthcare. Most societies are also patriarchal with men having dominance over females. Therefore, having women convince them would mean they have lost their masculinity and this in turn brings shame.

2.5. Theoretical Framework

This study was guided by the Gelberg-Andersen Behavioral Model for Vulnerable Populations. The model was developed by Andersen in 1968 to explain health-seeking behavior among immigrant populations in the United States of America, theorizes that the utilization of health services looks at predisposing, enabling, and need constructs

(Andersen, 1968). The original model was later expanded to include measures of health services used for particular conditions and personal health behaviors and maintenance practices that influence health outcomes (Gelberg, Andersen & Leake, 2010).

The more comprehensive model looks at the predisposing, enabling, and need under the traditional and vulnerable domains. The predisposing traditional and vulnerable domains include individual characteristics such as age, gender, marital status, ethnicity, education, employment, family size, acculturation, immigration status, literacy or knowledge, and childhood characteristics (Gelberg, Andersen & Leake, 2010). The enabling traditional and vulnerable domains look at factors that help individuals use health services or make it harder for them in utilization of health services. These variables include attitudes, personal and family resources such as income, social support, regular source of care, perceived barriers to care, competing needs, public benefits, the capacity to negotiate within the system, self-help abilities and community resources such as residence, region, health services resources, crime rate, and social service resources (Gelberg, Andersen & Leake, 2010). The need traditional and vulnerable domains include perceived health needs and evaluated health needs of the general population and the perceived and evaluated health needs that can be applied to vulnerable populations that are susceptible for PCa (Gelberg, Andersen & Leake, 2010).

Predisposing factors influence decision making of planned or intended behavior. For instance, knowledge on PCa. Knowledge of a disease will influence perception of men to screen since they will know the benefits of screening early. Enabling factors suitable resources required for accessing care for instance attitudes towards PCa screening. Need

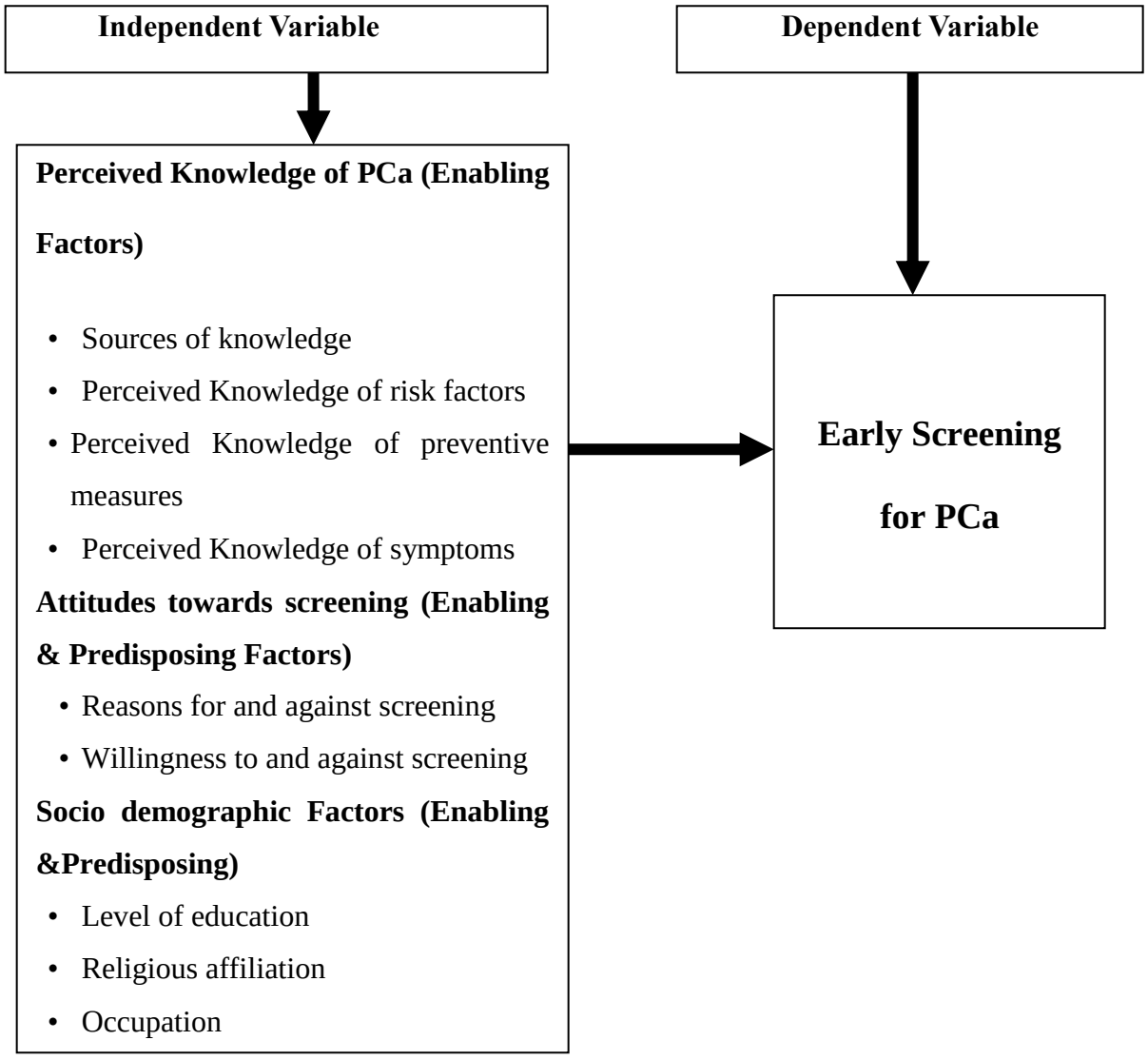
relates to how individuals has been identified as predisposing and enabling factor, while attitudes are conceptualized as being both enabling and predisposing. Socio-demographic factors such as level of educational attainment, occupation, religious affiliation and marital status have been selected for analysis as enabling and predisposing factors, as illustrated in the conceptual framework that is highlighted in the next section. Cultural dimensions and social dynamics are not taken into account by this model.

2.6 Conceptual Framework

Deriving from the aforementioned, this study will be guided by the conceptual framework illustrated in Figure 1.

Figure 1 shows the social determinants of early screening for PCa: It illustrates how the independent variables – Knowledge for PCa, attitudes towards PCa, as well as socio-demographic factors influence the dependent variable, which is early screening for PCa. The variables in knowledge include sources, causes, symptoms and preventive measures. The factors in attitudes include reasons for and against screening and willingness for and against screening. In sociodemographic factors it looks at variables such as level of education, religious affiliation, occupation and marital status which in turn influence the dependent variable which is early PCa screening.

Figure 1.1: Conceptual framework guiding the study



CHAPTER THREE
RESEARCH METHODOLOGY

3.1. Introduction

This chapter presents how data was obtained, processed, analyzed and interpreted to fulfill the research objectives. The methodology elements described in this chapter include the study design that was applied, the actual study area, target population, sample size and sampling procedure that was employed, data collection instruments, validity and reliability of the instruments, data collection methods and the data processing and analysis techniques and ethical considerations.

3.2. Research Design

The study used a mixed method approach, gathering and analyzing both qualitative and quantitative data. Mixed method approach was used because it gives a better understanding of the problem and yield more depth and breadth of the problem. The study employed a cross-sectional survey design through which quantitative data was collected using a semi-structured questionnaire, while qualitative data was collected using focused group discussions and interviews. The survey method was selected for this study because the data was collected at a single point in time and could provide useful insight into the population of study. (Mugenda, 2018).

3.3. The Study Area

The study was conducted in Nairobi County, which is also the capital city of Kenya. Nairobi County borders Kiambu County to the North and West, Kajiado to the South and Machakos to the East. The population of Nairobi as per the 2019 census was 4,357,073 (KNBS, 2019), constituting 9% of the total population of Kenya. GPS Coordinates 1.2921^0

S, 36.8219^{0}E. The census found that men account for approximately 49% of the city's population. The city, which occupies an area of 689 km^2, is a metropolis with representation of all the ethnic groups in Kenya and the world. Besides, Nairobi County was chosen because it has low uptake of screening of 32.1 per 100,000 people as compared to Mombasa at 16.3 and the lowest being Kakamega at 3.2. (CBS, Kenya 2014, KEMRI: Kenya National Cancer Registry, 2019), despite having very many healthcare facilities that have PCa screening resources. Some of the major public health facilities in Nairobi include Kenyatta National Hospital, Kenyatta University Teaching and referral Hospital, and Mama Lucy Referral Hospital. The city is also home to various large private hospitals such as the Nairobi Hospital, the Aga Khan Hospital, MP Shah, Karen, Nairobi West, Coptic, Mater, Nairobi Metropolitan, Nairobi Women's, Avenue, St. Mary's, Nairobi South, Bristol Park, and Guru Nanak among many others.

3.4. Target Population

The target population for this study consisted of all males in Nairobi County who were aged between 35 and 50 years, who consented to participate in the study and had lived in the city for not less than two years. According to Kenya National Bureau of statistics 2019, the total male population of males aged 35 to 50 was 608,795. This age bracket has been purposively selected because it is the age group at which men are encouraged to screen for PCa. (ACS, 2023). Out of this, a sample size of 384 was derived to constitute main respondents. Data collected from the main respondents was complemented by information from 15 key informants, who included 10 clinical officers, 2 public health officers and 3 community health volunteers.

3.4.1. Sample Size and Sampling Procedure

The sample size for this study was 384 males aged between 35 and 50 years, which was arrived at using the formula n= $\frac{z^2\ pq}{d^2}$, adopted from Fischer *et al* (1998),

Where;

n = Desired sample size (when target population is greater than 10,000)

z = Standard Normal Deviation which is equal to 1.96 corresponding to 95% confidence interval p = Prevalence of the issue under study, 50%

q = 1-p

d = confidence limit of the prevalence (p) at 95% confidence interval 1-0.95 = 0.05 Degree of accuracy desired for the study is hence set at 0.05.

Substituting the figures above in the formula.

Thus;

n =1.96^2 x 0.5x0.5= 384 respondents

The sample was arrived at through a four-step procedure. In the first step, out of the 17 sub-counties in Nairobi County, Kibra sub-county with a total population of 204,473 and Westlands sub-county with a population of 308,854 (KNBS, 2019) was purposively selected, because of their proximity to health facilities offering PCa screening and treatment services. In the second step, the selected sub-counties were divided into locations. Out of the five locations in Kibra Sub County, Laini Saba, and Woodley/Kenyatta with a total of 30,807 males (KNBS, 2019) was purposively selected. In Westlands sub-county, Kangemi and Mountain View with a total of 55,836 males (KNBS, 2019) was purposively

selected for the same reasons as those stated in the selection of locations in Kibra (KNBS, 2019).

In the third step, the sample of 384 was proportionally distributed across the four selected locations. With the aid of Assistant Chiefs, data collection sites were selected and a sample frame drawn. Respondents were then arrived at using a simple random sampling. in each location, as guided by their respective sample size. For instance, in Laini Saba location of Kibra Sub County, the researcher marked papers with 46 Yes and 46 No. Only those who picked the yes marked papers were considered for the study, subject to the study inclusion criteria. This procedure was done in all the locations under study as until the total sample sizes of 384 is attained. In the event that the selected member did not consent to participate or was otherwise unavailable, then the next member was picked.

Simple random sampling is preferred because it provide every respondent with an opportunity of being selected for the study, hence eliminates biasness.

Table 3:1 Sample size Distribution

Sub County	Location	Sampling Frame (Male Population of age 35-50 years)	Computation	Sample Size
Kibra Sub County	Woodley/Kenyatta	8,794	$= \frac{8{,}794 \ X \ 384}{47{,}932}$	70
	Laini Saba	15,781	$= \frac{15{,}781 \ X \ 384}{47{,}932}$	126
Westlands Sub County	Kangemi	12,033	$= \frac{12{,}033 \ X \ 384}{47{,}932}$	96
	Mountain view	11,327	$= \frac{11{,}327 \ X \ 384}{47{,}932}$	91
	Total	47932		384

3.4.1.1 Sampling Procedure for Key Informants

A total of 10 clinical officers from the five public hospitals, 2 public health officers and 3 community health volunteers were purposively selected because of their vast experience regarding male residents of those sub-counties who had undergone screening.

3.4.2. Inclusion and Exclusion Criteria

The study did not involve males who were outside the 35 – 50 years' age bracket, and also those who had not consented to take part in the study. While those who had lived in the area for less than two years and were above 50 years were not involved in the study.

3.5. Data Collection Tools

This study used three tools to collect primary data - a questionnaire, a focus group discussion guide and an interview guide.

3.5.1. The Questionnaire

A semi-structured questionnaire was developed for this study, to collect quantitative data from the 384 main respondents, who were men aged between 35 to 50 years. According to Kothari (2019), a questionnaire gives the researcher the opportunity to quickly gather a larger amount of data from the chosen demographic. The questionnaire contained both closed and open-ended questions, and was used to gather information on the demographic and socio-economic characteristics of the main respondents, in addition to information about their knowledge on PCa.

The researcher recruited four research assistants (RAs) who supported in administering the questionnaires. The RAs were graduates of social sciences, familiar with the study area. The RAs were taken through a one-day training that was conducted by the researcher. Areas covered during trainining included ways of approaching respondents, how to explain the questionnaires to the respondents and how to fill the questionnaire in case a respondent was unable to fill it for themselves.

After the training, copies of the questionnaire were distributed to the selected main respondents, waited for it to be filled and at the end of each day of data collection, the research assistant inspected all questionnaires, to check for their completeness. Consent was given by the participants after the researcher's explanation of the purpose of the study, its risk and benefits. The participants were also informed of the right to withdraw consent at any time without any penalty.

3.5.2. Focus Group Discussion Guide

A Focus group discussion (FGD) guide was used for this study because it helps in gathering qualitative data from respondents with similar backgrounds or experiences on a specific topic of interest. A total of four FGDs were conducted, 2 in Kibra and 2 in Westland Subcounty consisting of 12 participants drawn from among the respondents who had filled-in and returned the questionnaire. Each FGD was facilitated by the researcher, and had twelve discussants who had filled the questionnaire and returned based on Mugenda and Mugenda (2018) who proposed that on average, ten participants who had previously participated in a formal or informal group before the study would be sufficient to carry out an informative FGD.

Participants were urged to participate without restraint, and secrecy and anonymity were ensured. The discussions were moderated by the researcher, who gave each participant an equal opportunity to participate. The proceedings of the FGDs were then recorded by one of the RAs.

3.5.3. Interview Guide

The study also used an interview guide to collect qualitative data from key informants, who included 10 clinical officers working in public hospitals - two from each public hospital that provide cancer screening and treatment in Kibra and Westland Sub Counties. Two public health officers and three community health volunteers in selected data collection sites. The instrument accorded the researcher an opportunity to interact with the respondents (clinical officers) one on one which is instrumental since they are the ones on the ground to give relevant information from their experiences with the male residents on

PCa screening. Interview guides were also preferred since they allow for more free respondents' interaction with the researcher (Cohen & Manion, 2012). The guide used open- ended questions to elicit verbal responses from the clinical officers. These types of questions were useful in the study because they allowed the respondents to express themselves more freely. The interview also granted the researcher an opportunity to give clarification to the questions where necessary to the respondents.

In conducting Key Informant Interviews, the researcher first established rapport with the key informants, to create an atmosphere in which key informants were able to willingly communicate their views and opinions. After creating the rapport, the researcher made appointments with key informants to avoid scheduling conflicts. The interviewer then proceeded with factual questions. Questions requiring opinions and judgments were followed by factual questions, after some level of trust had been established and the atmosphere more conducive for candid replies. In phrasing such questions, the researcher was extremely careful not to make the key informant uncomfortable in answering the questions. The interview was conducted for approximately 45 minutes to one hour, as the researcher took notes.

3.6 Validity and Reliability

The research instruments were subjected to validity and reliability tests, as described in this section.

3.6.1. Validity of the Instruments

Face and content validity were determined by assessing the research tools on their ability to measure what they are intended to measure. (Thomas & Magilvy, 2011). It was done by

obtaining observations and opinions from supervisors on how they think the research tools should have been designed to be measurable. Face and content validity were used because of the short duration of the study and also to ensure participants easily understood the tool. The questions were also verified to check if all the respondents understood them the same way.

3.6.2. Reliability of Instruments

The accuracy with which items reflecting the same constructs produced responses that were similar was used to assess the reliability of the data. Permeger (2015) suggests that the sample size for s pilot study should be 10% of the sample size anticipated for the larger parent study. Therefore, a pilot sample of 39 men aged between 35 and 50 years living in Makina ward of Kibra Sub County and Mountain View of Westland Sub County were given the questionnaires for pilot testing. After one week, the same questionnaires were again administered to the same respondents' group and the responses were manually graded. The study examined the consistency of the findings across items measuring the same construct in the measure. Cronbach's Alpha was used to determine the questionnaire's reliability. An Alpha (α) = 0.7 is required in order to deem an instrument dependable with values below that indicating unreliability (Bolarinwa, 2015). The pilot data was correlated using SPSS for each scale to return the reliability the reliability output is summarised in Table **3.2.**

Table 3.2: Reliability of the Instruments

Variables	N	Items	Items Deleted	Reliability
Knowledge of PCa	39	7	3	0.742
Attitude towards screening	39	3	4	0.630
Sociodemographic factors	39	5	2	0.809
Average Reliability	**39**	**15**	**9**	**0.727**

From the summary table on reliability, knowledge on PCa had a reliability coefficient of $\alpha = 0.742$, attitude towards PCa screening $\alpha = 0.630$, sociodemographic factors $\alpha = 0.809$. The instrument had an overall coefficient $\alpha = 0.722$ thus reliable given that Alpha > 0.7.

3.7. Data Collection Procedures

The procedures through which data will be collected are described in the following section.

3.8. Data Analysis and Presentation

Quantitative data collected from the participants was cleaned, coded and entered for analysis using SPSS v. 26.0. Various cross-checking from the primary data also formed key part of the cleaning process. The data was analyzed in descriptive tests - such as averages-mean, std deviation and percentages and Inferential statistics- Chi Square and Crammer V– and presented in Tables and graphs. Qualitative data collected was coded, summarized, analyzed thematically and presented in narrative form.

A matrix indicating the data analysis process is presented as **Table 3.3.**

Table 3.3: Data Analysis Matrix

Objectives	Research questions	Independent/ Intervening variable	Dependent variable	Statistical analysis
To determine knowledge on PCa screening among younger men aged 35 to 50 years in Nairobi County.	What is the level of knowledge of PCa screening Nairobi County?	Knowledge on PCa	PCa early screening in Nairobi County	Descriptive statistics (frequency, std. deviation, percentages, mean, Likert scale)
To examine the attitudes on PCa screening in Nairobi County	What are the attitudes on PCa screening services in Nairobi County?	Attitudes	PCa early screening in Nairobi County	Descriptive statistics (frequency, percentage)
To establish the influence of socio-demographic factors on PCa screening in Nairobi County	What is the influence of socio-demographic factors on PCa screening in Nairobi?	Socio-demographic factors	PCa early screening in Nairobi County	Chi-Square, Crammer V

3.9. Ethical Considerations

This study commenced upon obtaining a go-ahead from Rongo University School of Graduate Studies (SGS). A letter of authorization was sought from the national Commission on Science, Technology and innovation (NACOSTI). Permission to conduct research was obtained from the office of the County Chief Officer-Public Health and Medical Services to proceed with the data collection. Participants in the study were guided through a consent form in a language they could understand and asked to voluntarily participate. No subject was coerced or improperly influenced into taking part in the study.

The participants were assured of the privacy that they would remain unanimous entirely during the session. The current study is purely an academic research and hence, the researcher assistants observed three universal ethical principles, including respect for participants, beneficence and justice. They were required to have an ethical approval certificate to conduct study on human subject. Data collected was stored in locked cabinet and soft copies stored in a password protected device.

CHAPTER FOUR
DATA PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This chapter presents the results of the study. It analyses the findings, then discusses the same, with reference to previous studies. The first section of this Chapter contains demographic information about the research participants, while the second section is organized around themes of the study objectives.

4.2 Response Rates

Questionnaires were administered to 384 males between the ages of 35 and 50 years living in Kibra and Westlands Sub-Counties of Nairobi County. Out of these, 368 copies were duly completed and returned, representing a 95.8% response rate. Furthermore, all the three focus group discussions (FGDs) were conducted as planned. As for key informants, the study recorded 100% response rate as all the targeted 10 respondents participated in the interview for qualitative data. This information is presented in **Table 4.1.**

Table 4.1: Response rate for the study

Category of respondents	Data Collection Technique	Planned F (%)	Actual F (%)
Main respondents (males of 35-50 years)	Questionnaire	384 (100%)	368 (95.8%)
	Focus Group Discussion	04 (100%)	04 (100%)
Key Respondents	Interview	10 (100%)	10 (100%)

This response rate as indicated in **Table 4.1** was considered satisfactory as it is in line with Bray, Noble, Robinson, Molloy and Tilling. (2017) who recommends 75% as a rule of the thumb for minimum responses for a study.

4.3 Socio-Demographic Data

To understand the socio-demographic characteristics of the study participants, respondents were asked to indicate their age, location of residence, duration stayed in the area, religious affiliation, and highest level of educational attainment. The results are as summarized in **Table 4.2.**

Table 4.2: Socio-Demographic Data

Demographic Characteristic		Frequency	Percentage
Age	35-39 years	148	40.2
	40-44 years	112	30.4
	45-50 years	108	29.4
	Total	368	100.0
Area of Residence	Woodley	67	18.2
	Laini Saba	112	30.4
	Mountain View	52	14.1
	Kangemi	137	37.2
	Total	368	100.0
Duration Stayed in Current Area	Less than 5 years	75	20.4
	5-10 years	214	58.2
	More than 10 years	79	21.5
	Total	368	100.0
Religious Affiliation	Christian	271	73.6
	Muslim	82	22.3
	Others	15	4.1
	Total	368	100.0
Highest Level of Education	No schooling	11	3.0
	Some Primary School	19	5.2
	Completed primary School	72	19.6
	Some Secondary school	29	7.9
	Completed secondary School	139	37.8
	Post-Secondary education	98	26.6
	Total	368	100.0

The study found that two fifths of the respondents (40.2%) were between 35 and 39 years of age, while slightly less than one third (30.4%) were in the 40-44 age-bracket and approximately one third (29.4%) were aged between 45 - 50 years. This age distribution as captured in Table 4.2 is consistent with the trends in the population structure of African cities such Lagos (Saghir & Santoro, 2018), Johannesburg (Adaku, 2019), Dar-es-Salaam (Owusu, 2018) and Kampala (Osman, Arima, & Divigalpitiya, 2017) among others, where the larger proportion of the population is aged below 50 years. This could be attributed to

the fact that it is the age in which men are in their productive age and tend to relocate to the city in search of employment opportunities.

Regarding area of residence, 37.2% of the respondents were residents of Kangemi, 30.4% of Laini Saba, 18.2% of Woodley, and only 14.1% were from Mountain View estate. This is indeed reflective of the population distribution in the said estates as captured in the 2019 national census (KNBS, 2019), and is indicative that informal settlements have high population density due to the fact that the city could not provide enough formal employment hence making them live in crowded informal settlements. Furthermore, as can be seen in **Table 4.2**, majority of respondents had stayed in their residential area for more than five years.

On religious affiliation, the study found that majority (70.7%) of the respondents profess the Christian faith, while 18.8% were Muslims. Interestingly, 10.6%g were adherents of other religious faiths such as African traditional religion and paganism. This finding is consistent with the 2019 census results, which indicate that a majority of the Kenyan population are Christians. Adherents of other religious faith such as African traditional was least since African traditional varied from traditional medicine, which entails plants, animal and mineral based medicines, spiritual therapies (Ngere, Akelo, Ondeng'e, Eidzon., Otieno, Nyanjom, Omore, & Barr, 2022) which may not be accessible in the city.

In relation to the level of educational attainment, this study found that cumulatively, slightly more than one third (37.8%) of the respondents had completed secondary school. The findings in Table 4.2 are consistent with Elgin and Oyvat (2016); as well as Kumar and Kober (2017), who all aver that urban dwellers tend to have higher levels of educational

attainment than their rural counterparts, with most of the latter having completed at least secondary school. The findings are also inconsistent with Kenya's 2019 census report, which shows that a majority of Nairobi residents have completed at least secondary education (KNBS, 2019). High education is attributed to community placing a high value on those with formal education and white-collar jobs hence high social status. As can be seen in **Table 4.2**, less than one third (26.6%) had post-secondary school education.

4.4 Respondents' Perceived Knowledge on PCa

In Objective One, the study sought to determine the level of knowledge on PCa among men between the ages of 35 and 50 years in the study area.

4.4.1. Respondents' sources of knowledge on PCa

Respondents were asked to indicate if they knew about prostate cancer, and how they got to know or hear about it. Their responses were as shown in **Table 4.3**.

Table 4.3 Respondents' perceived knowledge of PCa and sources of said knowledge

Knowledge and Source	Frequency	Percentages
Heard about PCa		
Yes	368	100
No	00	00
Sources of Knowledge on PCa		
Heard from Social Media	171	46.5
Watched on TV	114	31.0
Heard from a Friend	102	27.7
Heard from a Relative	42	11.4
Heard from a Doctor /Nurse	29	7.9

Table 4.3 shows that all the respondents had heard about PCa. Regarding sources of knowledge, Table 4.3 shows that the largest proportion of the respondents (46.5%) mentioned social media as their source of information on PCa. The second largest proportion (31.0%), identified television as their source, followed by a friend (27.7%), a relative (11.4%) and lastly a medical practitioner (7.9%). This finding was corroborated by qualitative data from focus group discussions, which confirmed that social media plays an important role in disseminating information. One of the participants of a group discussion had this to say;

> *"Most of my information I get from my phone, I don't concentrate much on my television or radio because I don't have time for the news. With my phone, I can easily search for anything I want and get information. Besides, some of these information we get from many of the social websites such as face books, twitter or WhatsApp*."

rviews further revealed that knowledge of PCa has spread quite rapidly among the public mostly through social media in recent years. In fact, one of the officers had this to say;

> *"Nowadays people access information easily through social media and owing to the spread of the disease which is quite rampant, nearly every male adult have the information regarding the scourge of PCa. In fact I can confidently say that most men above 25 years have information on the disease and can even tell its symptoms"*.

This finding confirms that social media platforms offer vast opportunities for education on PCa and other health-care matters as observed by (Plackett, Aradhna, Kassianos, Cross,

Lewins, Sheringham, Waller, & Wagner 2020). Social media platforms were the main disseminators of information on cancer in North Africa (Arafa, Rabah, & Wahdan, 2018) and Nigeria (Oladimeji, Bidemi, Olufisayo, & Sola, 2018). Nevertheless, it is instructive to note that even though social media provides is a vast repository of information for a large number of people, it has its limitations. For instance, it cannot reach those with incompatible devices, and has been proven to be a source of inaccurate information and sometimes, outright distortion and misinformation (Plackett, et al, 2020). As will be seen in the discussion after **Table 4.4** on page 59, some of the misinformation and distortions have the potential of causing unfavourable outcomes for persons diagnosed with PCa.

Data in **Table 4.3** also indicates that only 5.9 % of the respondents mentioned healthcare practitioners as their source of information on PCa. This could be indicative that most respondents do not visit health facilities for routine check-ups, and only do so when they are ill because typically, one must visit a healthcare facility in order to obtain information from healthcare practitioners, during consultation. The revelation that most of the respondents do not visit healthcare facilities unless they are ill was further confirmed by qualitative data from FGDs and KIIs. During FGDs, it emerged that almost none of the participants visited healthcare facilities for routine checkups, due to various reasons, ranging from the high costs involved, to inherent fear of healthcare facilities. According to one FGD participant:

> *I would rarely visit an healthcare facility for routine medical checkup and also obtain a health information such as that of PCa because of the cost of routine checkup and also because I just fear an hospital environments*

The abovementioned sentiments were confirmed by a key informant, who said:

> *Many of the residents of this area don't practice routine medical checkup and be acquainted with the medical information because of the belief that the routine checkup is very costly*

The abovementioned revelation is disconcerting because there is evidence that routine medical checkups can lead to early detection of not only PCa, but other cancers as well (Boustany, Abdessater, Akl, Kanbar, Khoury, Assaf, & El Khoury, 2021; Yu, W, & Zhou, 2020). It can also lead to early detection and treatment of chronic diseases such as hypertension and heart conditions, among others (Taitt, 2018). Furthermore, studies show that sick-visits do not accord ample opportunities for routine tests, since the healthcare practitioners tend to concentrate on finding and attending to the main cause of illness that necessitated the visit (Moris, et al, 2022; Zhu, Idemudia & Feng, 2019).

Notably, none of the respondents mentioned awareness campaigns as a source of information on PCa. This is of important note, since the study area has been targeted by various awareness campaign initiatives, from both the Kenya national government and the County government of Nairobi. This was confirmed by qualitative data from both FGDs and KIIs. This apparent misnomer will be discussed further in this Chapter, in the discussion subsequent to **Table 4.6** which appears on page 44.

4.4.2 Perceived Knowledge on Causes of Prostate Cancer

To further assess knowledge on PCa, respondents were asked to list the causes of PCa that were known to them, starting with the most to the least common cause. **Table 4.4** shows their responses.

Table 4.4 Respondents' perceived knowledge on causes of PCa

Causes of PCa	Frequency	Percentages
Genetic factors	233	63.3
STIs	154	41.8
Obesity	151	41.0
Witch craft	110	30.1
Impotence	110	29.9
Alcohol	78	29.0
Old age	100	27.1
Having many sexual partners	89	24.1

As can be seen in Table 4.4, 233 (63.3%) associate PCa with genetic factors. Another significant proportion (41.8% and 41.0%) identified STIs and obesity as being the main causes of PCa. The association of PCa with STIs and obesity is outrightly distortional and can result in negative outcomes for persons diagnosed with PCa. For instance, close to one third (30.1%) perceive witchcraft as the cause for PCa, with the implication that such persons would seek ethnomedical solutions for treatment because, according to Shivachi and Otengah (2017), in assessing socioeconomic determinants of maternal healthcare-seeking behaviour in the informal settlements of Nairobi, highlighted that, the decision on which healthcare options to select is influenced by the perceived cause of illness. Furthermore, some of the perceived causes could result in stigma. For example, having many sexual partners was identified as a causal factor by 24.1% of the respondents. This implies that persons diagnosed with PCa can be stigmatized as being promiscuous.

Other distortional perceptions with potential for stigma and maltreatment by society include the belief that PCa is caused by STIs (41.8% of respondents), and that impotence is one of

the risk factors (29.9% of the respondents). According to Shivachi, Sidha and Ayabei (2019), in the informal settlements of Nairobi, STIs are associated with promiscuous behavior. Considering that a large proportion of the respondents to this study were resident in the informal settlement of Kibra in Nairobi, the perception that PCa is caused by STIs is a potential cause of stigma for persons diagnosed with PCa. Further to this, the perception that PCa is associated with impotence appears to be popular in the study area, and has already been a source of family strife, as narrated by one FGD participant.

> *"I remember on one occasion, a neighbor who was diagnosed with PCa disowned his children, ostensibly because he read online that impotence is one of the causes of PCa. It took the intervention of elders, a counsellor and a medical doctor to convince him that what he read online was not correct".*

Other causes identified were alcohol (29.0%), old age (27.1%), and having many sexual partners (24.1%).

Not even half the respondents could identify the causal factors associated with PCa. According to Chan, Gann and Giovannucci, (2015), knowledge of the causes associated with a disease, is important for prevention and management. Besides, the causes of PCa are still the subject of medical research and the aforementioned causes such as obesity is a risk factor while the other causes have no association with PCa. The main risk factors associated with the disease include age, rural exposures that are mainly occupational such as farming and environmental, personal smoking history, family history of prostate and other cancers, as well as obesity (WHO, 2019).

It emerged from qualitative data that some of the aforementioned misinformation was obtained from social media platforms. This is especially disconcerting, considering that close to half (46.9%) of the respondents identified social media as a source of information on PCa. This implies that any misinformation on social media is likely to have damaging impacts on PCa awareness.

4.4.3 Perceived knowledge of Prostate cancer and age

This study also sought to establish respondents' awareness of the relationship between age and PCa. Respondents were therefore requested to rate, on a scale of 1 – 5, the risk of various age groups of people getting PCa, (*Where 1=Very low risk; 2= low risk; 3=Average risk; 4=High risk and 5=Very high risk*). **Table 4.5** shows their responses.

Table 4.5 Rating the risk of the age groups of people getting PCa

Age Group	1	2	3	4	5	Mean	StdDEV
35-39 years	79(21.5%)	86(23.4%)	141(38.3%)	23(6.3%)	39(10.6%)	2.61	.98
40-44 years	61(16.6%)	59(16.0%)	156(42.4%)	34(9.2%)	58(15.8%)	2.92	.94
45-49 years	32(8.7%)	44(12.0%)	131(35.6%)	68(18.5%)	93(25.3%)	3.40	.79
50-55 years	21(5.7%)	31(8.4%)	42(11.4%)	65(17.7%)	209(56.8%)	4.11	.74
55-60 years	23(6.3%)	29(7.9%)	21(5.7%)	62(16.8%)	233(63.3%)	4.23	.68

Data in **Table 4.5** clearly shows that for most of the respondents, age is perceived to be a major risk factor for PCa. Data in Table 4.5 is consistent with the information in Table 4.4, which shows that close to one third (61.8%) of the respondents identified age as a risk factor for PCa. In **Table 4.5**, close to half (44.9%) of the respondents perceive males between the ages of 35 and 39 years as being at very low or low risk of getting PCa. Only 16.9% of the respondents perceive this age group as being at high or very high risk (Mean

= 2.61; SD 0.98). **Table 4.5** also shows that perceived risk increases with age, peaking at the 55 to 60 years age bracket, which is perceived to have either high or very high risk by approximately four fifths (80.1%) of the respondents (Mean = 4.23; SD 0.68).

Data in **Table 4.5** is corroborated by qualitative information obtained from key informant interviews, which shows that PCa is rarer in men younger than 40 years, but the chance of having PCa rises rapidly after the age of 50 years. One of the clinical officers had this to say during the interview,

> *Men with over 50 years are most at risk in getting PCa and the older a man is, the greater the chance of getting PCa. Based on our records, patients who have been diagnosed with PCa are mostly men above 50 years.*

Data in **Table 4.5** is also consistent with Mirzaei-Alavijeh, Ahmadi-Jouybari, Vaezi, and Jalilian (2018), in assessing PSA test uptake on elderly men in Western Iran also found that the risk of PCa is perceived to increase with age, especially after the age of 50 years.

The implication of the data in **Table 4.5** is that in relation to age, the level of PCa awareness among the respondents is fairly high, considering that a considerable proportion was able to correctly relate PCa risk with age. This knowledge is consistent with available scientific information, because many studies have established that PCa is a disease that largely affects the elderly male population averaging 65 years old and above and a large percentage of deaths due to this disease occur in men 75 years and above (Li, 2016; Weinrich, 2016).

4.4.5 Perceived Knowledge on preventive measures for PCa

This study sought to establish respondents' knowledge of preventive measures for PCa, as part of their knowledge on the disease. Respondents were therefore asked to freely list the PCa preventive measures known to them. Their responses are presented in **Table 4.6.**

Table 4.6: Perceived Knowledge on preventive measures known to respondents

Measures	Frequency	Percentages
Reducing intake of red meat	209	56.8
Maintaining a healthy body weight	201	54.6
Avoiding STIs	164	44.6
Spiritual Protection	139	37.8
Having sex regularly	121	32.9
Exercising regularly	65	17.7
Staying faithful to one partner	61	16.6
Avoiding alcohol	60	16.3

As can be seen in **Table 4.6**, 209 (56.8%) cited reducing intake of red meat as a preventive measure. Other preventive measures that were identified include maintaining a healthy body weight 201(54.6%), avoiding STIs 164(44.6%), Spiritual Protection (37.8%), having sex regularly (32.9%), exercising regularly (17.7%) staying faithful to one partner (16.6%) and avoiding alcohol (16.3%).

Data in **Table 4.6** reveals a consistency between the causal factors identified in Table 4.4, and the perceived preventive measures. For instance, maintaining a healthy body weight, eating healthy and regular physical exercises are all intended to slow down the effects of

aging and to eliminate obesity, both of which were identified as causal factors in Table 4.4 on page 59. Similarly, 37.8% of the respondents mentioned spiritual protection as a preventive measure, which corresponds closely to the 30.1% who identified witchcraft as a causal factor (see **Table 4.4** on page 39). Regarding spiritual protection, qualitative data obtained from FGDs shows that the protection in question ranges from prayer to ethnomedical interventions such as regular consumption of protective herbal concoctions, as well as protective spells and artifacts. (Ngere et al., 2022).

Additionally, in **Table 4.6**, close to one fifth (17.7%) of the respondents mentioned avoidance of STIs as a preventive measure, which compares to 22.2% who mentioned STIs as a causal factor in **Table. 4.4** on page 39. In similar vain, alcohol consumption was mentioned by 9.2% of the respondents as a causal factor in **Table 4.4**, and avoidance of alcohol receives mention by 16.3% of the respondents in **Table 4.6.**

In this respect, this study is in congruence with Shivachi and Otengah (2017), who aver that the perceived causes of a disease will influence the preventive measures taken, as well as the treatment choices made. The aforementioned finding is also in line with the Gelberg-Andersen Behavioral Model for Vulnerable populations, which guided this study. According to the model, preventive healthcare measures are influenced by perceived predisposing constructs (Andersen, 1968; Gelberg, Andersen, & Leake, 2010).

Early screening was not mentioned by any of the respondents. This is a notable anomaly considering that the main focus of the PCa awareness message as disseminated in the study area is the need for early screening. As per information, education and communication (IEC) material obtained by the researcher, as well as qualitative data from key informants,

the main focus of PCa awareness campaigns is to urge men to go for early screening as stated by one key informant:

> *"The main message in all PCa awareness, whether they are by national or county government, or other change agents, is early screening. We do not understand why these awareness message does not translate into higher numbers of men getting screened."*

The aforementioned sentiments, and the data in **Table 4.6** are indicative of a disconnect between awareness campaigns on one hand, and knowledge of early screening on the other hand, in relation to PCa. Qualitative data from FGDs and KIIs reveals that awareness campaigns have been conducted in the study area, and that, as highlighted by key informants, early screening was the key message. Nevertheless, as can be seen in **Table 4.6**, only a small proportion of the respondents (21.7%) mentioned early screening as a preventive measure. This disconnect could be partially explained by data in **Table 4.3**, whereby none of the respondents mentioned awareness campaigns as one of the sources of information on PCa in the study area.

4.4.6 Perceived Knowledge on early symptoms of PCa

This study also sought to find out from respondents, their knowledge of the early symptoms associated with PCa. Respondents were therefore asked to freely list the early symptoms of PCa known to them. **Table 4.7** shows their responses.

Table 4.7: Perceived Early symptoms of PCa as listed by respondents

Symptoms of PCa known to Respondents (n = 368)	Frequency	Percentages
Not familiar with any symptoms	165	44.7
Pain during urination	164	44.6
Difficulty in urination	163	44.3
Sores in male private parts	163	44.3
Swollen private parts	163	44.3
Bloody urine or semen	162	44.0
Difficulty emptying the bladder completely	162	44.0
Frequent urination	161	43.8
Severe weight loss	154	41.9
Body sores	151	41.0
Loss of sexual libido	151	41.0
General body aches	141	38.3
Loss of hair	140	38.0
Severe headache	140	38.0
Loss of appetite	138	37.5

Table 4.7 shows that only approximately a quarter of the respondents were able to identify some of the early symptoms that are associated with PCa. The largest proportion of the respondents (44.6%) mentioned pain during urination as a symptom of PCa. An almost similar proportion identified symptoms such as difficulty in urination; sores in male private parts; swollen private parts; bloody urine or semen; difficulty emptying the bladder completely; frequent urination respectively (44.3%, 44.3%, 44.3%, 44.0% and 43.8%). Notably, larger proportions mentioned symptoms typically associated with later stages of PCa, but or not exclusive to PCa. Some of these included severe weight loss (41.9%) body sores (41.0%), loss of sexual libido (41.0%), general body aches (38.3%) loss of hair (38.0%), severe headache (38.0%) and loss of appetite (37.5%). Similarly important, is the revelation in **Table 4.7** that more than two fifths (44.7) of the respondents did not mention any symptoms at all.

The aforementioned data is an indication of relatively low levels of knowledge on the early symptoms of PCa, compared with other cities in Africa. Similar studies in other cities in Africa have reported relatively higher levels of knowledge of PCa early symptoms, with only small proportions of men not being able to mention any symptoms at all. For instance, a study in Kampala, Uganda found that73.8% of men were unable to mention any symptoms of PCa, (Busingye, 2015) while in another one in Dar-es-Salaam, Tanzania, only 72.7% were not able to mention any symptoms at all, (Bugoye et al, 2019). Similar low numbers of men who were able to mention any symptoms of PCa were reported in Lusaka, Zambia (Sakala, 2020). Lagos, Nigeria, (Olaoye, Oyerinde & Baderinwa, 2022) and Cape Town, South Africa (Mofolo et al, 2015). Likewise, other studies have reported higher proportions of men who were able to correctly identify symptoms of PCa, compared to only approximately a quarter for this study. Higher proportions were reported in Lagos (Agalliu, Adebiyi, Lounsbury, Popoola, Jinadu, Amodu, Paul, Adedimeji, Asuzu, Ogunbiyi & Shitu, 2015) Lusaka (Chilando, 2019). Dar-es-Salaam (Kivuyo, Nyongole, Mushi, Akoko, Mizinduka, Mtaturu, Mwanga & Njiku, 2020) and Kampala (Okuku, Orem, Holoya, De Boer, Thompson & Cooney, 2016) and was attributed to high levels of education and patients presenting themselves symptomatic prostate cancer which according to (Gelberg-Andersen and Leake, 2010) were predisposing and need constructs towards utilization of health services.

A qualitative data revealed a possible explanation for the apparent lack of knowledge on symptoms of PCa in the study area. The first possible reason for the apparent low level of knowledge of early symptoms is associated with relatively slow progression of the disease, and the low uptake of early screening. As a result, many of the early symptoms of PCa are

not typically associated with the disease, because the person manifesting with them is probably not diagnosed with PCa. For this reason, larger proportions of the respondents were able to identify the symptoms associated with later stages of PCa, and not those associated with the early stages. Besides that, some of the mentioned associated symptoms of PCa, are not typically the symptoms rather the side effects of PCa treatment. For instance, loss of hair does not specify in which particular of the body. According to ACS (2023), loss of pubic hair is experienced whenever one is undergoing treatment. Loss of sexual libido according to Sun, Oyesanmi, Fontanasora, Reston, Guzzo and Schoelles (2014), are as a result of surgery or radiation therapy which has an impact on sexual function. Loss of sexual libido could also be attributed to urine leakage leading to embarrassment and in turn significantly deter men's willingness to engage in sexual activity (Mendez, Sexton & Lentz, 2018). According to one key respondent who is a clinical officer:

> *"PCa is a slow progression cancer. Unfortunately, by the time the symptoms manifest themselves, the patient is at an advanced stage of disease progression, and typically, the deterioration is pretty fast. What we have experienced is that in most cases, the patient is immediately sent back to their rural homes, where treatment and management is presumed to be easier."*

The aforementioned qualitative information could explain the prominence in **Table 4.7** of symptoms such as severe weight loss (41.9%) body sores (41.0%), loss of sexual libido (41.0%), general body aches (38.3%) loss of hair (38.0%), severe headache (38.0%) and loss of appetite (38.0%). While these symptoms have been associated with later stages of

PCa (Netto, 2022), they are not typical of the disease and are generally associated with many other diseases, including different types of cancers.

The second part of Key Informant 004 Kibra's sentiments revealed an interesting phenomenon – the practice of transporting seriously ill persons back to their rural homes. This implies that in many cases, persons who have been diagnosed with PCa, and who are in advanced stages of disease progression, are likely to be transported back to their rural areas, therefore suggesting that the interaction of men in the study area with PCa patients could be minimal. This information was confirmed by qualitative data from FGDs, where according to one FGD participant:

> "*In most cases, our relatives who are critically ill from PCa and other cancers are usually transported back home, so that they can receive better care from relatives. Here in Nairobi, it can be difficult for us to provide care, because people have to go to work every day"*

In another FGD, one participant said:

> *"When someone is very ill, we transport them to the village so that in case they die, we minimize the cost of transporting their dead bodies. It is easier to transport a sick person, than a dead body. Our people must be buried in their rural homes, and it becomes very expensive and complicated when someone dies in Nairobi".*

The aforementioned sentiments, seen together with the information obtained from Key Informant 004 of Kibra, could provide the second possible reason for the apparent low levels of awareness of early symptoms of PCa, as indicated in **Table 4.7.** The

abovementioned sentiments suggest that in most cases, diagnosis for PCa in the study area, occurs at advanced stages of diseases progress, and that soon after diagnosis, the patients are spirited away to their rural homes. This implies that the interaction with the disease and its patients is relatively low in the study area, thus affecting general levels of knowledge. This finding corroborates the position of Menon, Coghill, Mutyaba, Phipps, Okuku, Harlan, Orem and Casper, (2018), who argue that HIV awareness was higher in those parts of Uganda that experienced very high prevalence of the condition, because communities interacted closely and frequently with the condition and persons living with HIV and AIDS (PLWHAs).

Data in **Table 4.7** also reveals that some respondents identified some symptoms of STIs as being associated with PCa. In this sense, the findings in **Table 4.7** resonate with the data in **Table 4.4** and **4.6**. As shown in **Table 4.4**, more than two fifths of the respondents (41.8%) identified STIs as a cause of PCa, while in **Table 4.6**, close to half of the respondents (44.6%) said that PCa can be prevented by avoiding STIs. This close association between STIs and PCa is once again manifested in **Table 4.7**, whereby a significant proportion of the respondents have mention swollen private parts and sores in private parts at (44.3%) as early symptoms of PCa. It is however noteworthy that the aforementioned symptoms are typically associated with STIs (Mbugua, 2021). This close association between PCa and STIs was also reported in Nigeria (Olapade-Olaopa, 2014; Ogundele & Ikuerowo, 2015), Uganda and Kenya (Wanyagah, 2014). As mentioned in the discussion succeeding **Table 4.4**, this perception that PCa is somehow related to STIs could be a cause of stigma, and could contribute to the low uptake of screening for the former.

Indeed, this was confirmed by an interview with one of the key informants, who averred that:

> *"Most patients who to some extent have come for check up or have personally called me since they don't want any other person to know about their penile problems have always mentioned an STI and most from my chemist come with a drug name in mind yet this has always turned out to be a symptom if checked properly."*

This confirms that there is still low knowledge levels on PCa in regards to signs and symptoms and myths and misconceptions surround it leading to fear and feeling embarrassed. This is congruent with a study done by Mbugua et al. (2018), whereby PCa was associated with several myths and misconceptions. Fear of embarrassment has been seen as a negative impact on men's health-seeking behaviour, (Ezenwankwo, Chukwudi, & Nnaji, 2020).

4.5. Attitudes towards Screening for Prostate Cancer

This section focuses on Objective Two, which was to examine the attitudes of men towards early screening for prostate cancer in Nairobi County. To examine the attitudes, this study first established the uptake of screening, then explored the reasons for screening and not screening, and finally found that respondents who had not screened were willing to be screened. The results are presented in **Table 4.8.**

Table 4.8: Attitudes towards early screening for prostate cancer

	Frequency	**Percentages**
Ever been screened for PCa (n=368)		
Yes	15	4.07
No	353	95.93
Reasons for screening (n=15)		
Advised by a doctor to get screened	08	53.3
Family history of PCa and cancer in general	07	46.7
Pressure from friends and family to get screened	05	33.3
Out of curiosity and Availability of free screening services	05	33.3
Experienced some symptoms of PCa	04	26.7
Part of routine medical examination	04	26.7
Reason for not screening (n=353)		
No symptoms therefore no need for screening	257	72.8
Cost of Screening	221	62.6
Fear of cancer	188	53.3
No family history of PCa or cancer in general	181	51.3
Fear of the screening process	151	42.8
Not sure about the benefits of screening	109	30.9
Don’t want family and friends to know	45	12.8
Unavailability of screening services	41	11.6
Willingness to go for screening in future		
Willing	255	72.2
Not willing	98	27.8

Data in **Table 4.8** shows that (95.93%) of the respondents had not been screened for PCa. This is an indication that the uptake of PCa screening in the study area is at the lowest end of PCa screening rates in Nairobi County, where the study was conducted. According to Wanyangah, (2014), as well as IPSOS Synovate (2017), the PCa screening rates in Nairobi County ranged from 4% to 11%, depending on the area of residence. With a rate of 4.07% as shown in **Table 4.8**, it is evident that the study area is among the locations with the lowest rates of PCa screening in Nairobi County. This could be attributed to negative attitudes which according Gelberg-Andersen & Leake, 2010) was an enabling factor towards utilization of health services.

The foregoing data in **Table 4.8** reveals a variance between awareness and uptake of screening. While a significant proportion of the respondents demonstrated PCa awareness, through their knowledge of causes **Table 4.4,** preventive measures **Table 4.6** and even early symptoms **Table 4.7**, a very large proportion have not been screened. This could be partly related to the fact that, as can be seen in **Table 4.6**, none of the respondents identified early screening as one of the preventive measures for PCa. Nonetheless, this study sought to establish the reasons for screening or not screening, as presented in **Table 4.8**.

Data in **Table 4.8** shows that more than half of those who had been screened did so on advice from a doctor. It is instructive that this constituted the largest proportion of respondents who had been screened for PCa, and could be indicative that most of the respondents who had been screened, did so involuntarily. Whereas this finding is congruent with (Sakala, 2020), it is contradictory to the results of (Olarewaju, 2020) who found that

most of the men who opted for early screening for PCa did so on their own volition. However, Sakala (2020), aver that most men who screen for PCa do so on doctors' advice. Typically, a doctor may advice a client to screen for PCa if the former has reason to believe that the latter has symptoms of, or is at risk of contracting PCa (Ugochukwu, Odukoya, Ajogwu, Ojewola, 2019; Benurungo, Munyambaraga, Chironda, & Bisanukuri, 2020; Necku, Anaba, & Abuosi, 2019). This could therefore imply that the respondents who screened for PCa on doctors' advice could either have presented with symptoms, or may have been seen to be at risk of contracting PCa.

As indicated in **Table 4.8,** the second largest proportion (46.7%) of respondents who had been screened for PCa cited family history of PCa and cancer in general, as their reason for screening. This corresponds with the proportion of respondents (51.3%) who mentioned family history as a reason for not screening. This implies that for most of the respondents, family history is perceived to be a major cause, as well as risk factor for PCa. This perception further confirms the data in **Table 4.4,** which shows that two thirds (63.3%) of the respondents mentioned genetic factors as the main cause of PCa. The importance of family history in the decision to screen or not, was further amplified by qualitative data. According to one FGD participant:

> *"When a family one or two members with history on Prostate cancer or any other type of cancer, he or she should undergo screening since cancer is hereditary and I have seen this in patients with breast cancer.*

The evident awareness of the significance of family history in PCa is further indicative of PCa awareness in the study area. According to Kinyao and Kishoyian (2018), family

history with PCa is one of the risk factors. Nevertheless, it is important to note that some of the respondents who confessed to having a family history of PCa had not been screened, as revealed by qualitative data from FGDs. For instance, one of the FGD discussants said:

> *Some people won't go for screening despise the fact that a close family member is undergoing treatment. One recited that he is father had prostate cancer because of his lifestyle and he was opposite of him.*

The abovementioned sentiments further confirm the variance between PCa awareness and uptake of screening in the study area. In this finding, this study is incongruent with Mbugua et al (2021), all of which found an association between awareness and uptake of screening.

The third most common reason for screening in **Table 4.8** is pressure from friends and family, cited by one third (33.3%) of the respondents. This finding corresponds with the results of (Ezenwankwo, 2020; Gathirua-Mwangi, 2018); as well as Shivachi and Otengah (2017); who highlighted the importance of friends and family in health-seeking behaviour. The authors aver that friends and family act as the first source of information and guidance, since they are typically the first resort from whom patients seek guidance and support whenever illness strikes. The authors further argue that friends and family are usually the first to be informed about illnesses and the first to notice symptoms. In this sense therefore, family and friends are considered to be a form of motivation in health-seeking behaviour and healthcare decision-making.

It is equally important to point out the apparent contradictory role of friends and family in uptake of screening services. As can be seen in **Table 4.8**, slightly more than one tenth of

the respondents who had not been screened (12.8%) said that they did not go for screening because they did not want their friends and family to know in case they turned out to be PCa positive. This was rather curious, but was soon clarified by qualitative data from FGD, where it emerged that this perception was largely influenced by genderized notions of masculinity. In the eyes of those who gave this as a reason for not screening, a man is expected to be strong and not susceptible to illnesses. Thus, if one is screened and found with cancer, it will be a portrayal of declined masculinity. In the words of one FGD participant:

> "*As a man, I am a symbol of strength for my family, and I cannot afford to be seen to be weak. If I go for screening and am found to have cancer, my family will be traumatized."*

Qualitative data further revealed that the fear of stigma could be contributing to the abovementioned sentiments. As shared by one of the key informants:

> *"Many men in this area are afraid of screening for PCa because of the stigma that comes with a positive result. This is largely due to a misconception that PCa is somehow related to sexual abilities and STIs."*

Table 4.8 also shows that one third (33.3%) of the respondents who were screened, did so either out of curiosity or availability of PCa screening services. Notably, qualitative data revealed that those who got screened out of curiosity did so during outreach activities where PCa screening services were offered free of charge. This is a very important revelation, when the proportion of those who got screened in response to availability of free

screening services is analyzed with respect to the total number of respondents. As can be computed from **Table 4.8**, only seven (1.9%) of all respondents - got screened as a result of availability of free testing services. This revelation is probably one of the most disturbing findings in this study, since it shows that even among those who got screened for PCa, a very small proportion did so voluntarily, even when screening services were availed free of charge.

Indeed, this finding was corroborated by qualitative results from key informant interviews. In the words of one key informant, a clinical officer:

> *"I have participated in three outreach exercise, during which we conducted free screening for cervical and prostate cancer. Unfortunately, the number of men who turned up for screening on all the occasions was very low, compared to that of women who screened for cervical cancer."*

Table 4.8 also shows that approximately one quarter (26.7%) of the respondents who screened for PCa did so after experiencing what they perceived to be symptoms of PCa. This means that the respondents presented for screening at later stages when prognosis was poor and this in turn leads to poor health outcomes. In early stages, PCa is asymptomatic and for one to undergo screening on onset of a symptom could mean it's either they are not knowledgeable of the symptoms to watch for or they have been ignoring the symptom and treating it as another non communicable disease and have only come when the medication they have been using has lost potency. Adeloye et al (2016), stated that PCa is asymptomatic in early stages and patients who screen with symptom, normally present late. A similar proportion (26.7%) tested for PCa as part of routine medical examinations. This

represents the few of the respondents who did have health insurance and are employed. This is the only population who have time to visit hospitals for check-ups despite being sick or not and had all the time to even go for screening and even if they tested positive, they could go on with treatment. Otherwise, majority of the respondents only visited the hospital when sick and would go straight to seek treatment on whatever was ailing them. Ugochukwu et al (2019), also highlighted ignorance as a barrier to screening. A respondent reported not undergo screening for if they test positive, they would not have the money to cure the disease. Thus, the healthcare providers needed to emphasize on the benefits of screening to allow for utilization of shared decision making (ACS, 2023).

Data in **Table 4.8** also provides information on the reasons for not screening. As shown, close to three quarters (72.8%) of the respondents who had not screened for PCa said that they did not screen because they did not have any symptoms of the diseases. Nonetheless, it is noteworthy that a significant proportion of the respondents were not familiar with any symptom of PCa, as shown in **Table 4.7.** It is equally worth noting that a significant proportions of the respondents mentioned symptoms that are not typically associated with early stages of PCa, such as severe weight loss, body sores, loss of sexual libido, general body aches, loss of hair, severe headache, and loss of appetite.

This is yet another disturbing finding of this study, considering that the respondents' decision to wait for symptoms before screening is self-defeating in two ways. In the first place, waiting for symptoms, while not being familiar with the said symptoms, is self-defeating. Secondly, the entire purpose of early screening is to detect risk factors before

manifestation of symptoms. Thus, testing after manifestation of symptoms cannot be construed to be early screening.

The second largest proportion of respondents who had not screened for PCa cited the cost of screening (62.6%) as their reason for not screening. As revealed by qualitative data, the average cost of the PSA test is approximately Ksh. 3,000/=, which could be beyond the reach of many respondents. Qualitative data from KIIs further revealed that the PSA test is not covered by the National Hospital Insurance Fund (NHIF), which means that one has to either pay in cash, or be subscribed to more comprehensive health insurance covers, which are typically available to people on permanent formal employment. As can be seen in **Table 4.9** a significant proportion of the respondents were either not employed or were casual labourers. According to Ouma, Masai and Nyadera (2020), a majority of Kenyans who are either unemployed or casually employed are unable to afford medical insurance, other than NHIF. Atieno, Opanga, Martin and Godman (2018), also report that NHIF is limited, in the sense that it restricts the number of allowable procedures, especially tests. In the words of one FGD participant:

> *Most of the people around this place do not have health insurance covers and so, often find it difficult to obtain proper healthcare in health facilities. For instance there are instances where medical cost is high and at the same time the person cannot meet the bills yet he doesn't have a medical cover*

The abovementioned finding is congruent with the results of Kolade, Oladeji, Akinola, & Adeleke (2017); Mwangi et al. (2020) who also found that most of the male population in informal settlements and rural areas did not screen for non-communicable diseases because

the screening procedures were costly amidst their meagre income. Opondo, Onyango, and Asweto (2020), found that an association between access to comprehensive health insurance and early screening for PCa. Income according to Gelberg-Andersen & Leake (2010) is an enabling factor in utilization of health services.

In corroboration with the aforementioned finding, qualitative data shows that comprehensive health insurance allows for complete medical checkups, which is generally very costly in Kenya. According to one of the key informants:

> *"the more comprehensive medical covers have a provision for complete medical checkups, during which most tests can be conducted, including PSA and even other screening tests. If one were to pay in cash, t complete medical checkup can cost anything from 30,000 to 80,000 Kenya Shillings".*

The aforementioned sentiments could explain why **Table 4.8** shows that a very small proportion of the respondents who screened for PCa, did so as part of routine medical examinations. Nonetheless, this study found it interesting that while close to two thirds (62.6%) of the respondents mentioned the cost of screening as a reason for not screening, the number of those who turned up for free screening services was low, as shown in the discussion subsequent to **Table 4.8.** However, this was soon clarified by both qualitative data from FGDs, and secondary data from previous studies. This study discovered that most of the outreach activities where free screening services were offered, were conducted during the day, when most of the respondents have to be at work, or out looking for work. According to one FGD participant:

"Yes, it is true that there was a free medical camp where we were told they would do free testing for several cancers, including the men's cancer. However, the activity was conducted on a Saturday, and I have to work on Saturdays. It is not possible for me to forgo work so as to get free testing. The women went in large numbers because they were free on that day"

The aforementioned sentiments are consistent with WHO (2019); as well as Rundle, Neckerman, Sheehan, Jankowski, Kryvenko, Dellang and Rybicki, (2013), who all argue that the cost of healthcare does not only comprise the actual cost of the healthcare service, but also includes the cost of physically accessing the treatment. In the case of the respondents in this study, the cost of physically accessing the treatment constitutes foregoing work for a day, which means foregoing their pay for that day. As argued by Odemba and Masinde (2021), casually employed men view hospital visits as wastage of precious time that would have been spent earning, especially the long waits that are typical of hospital visits in Kenya.

Table 4.8 also shows that a significant proportion of the respondents cited fear as their reason for not screening for PCa. Slightly more than half (53.3%) of the respondents cited fear of cancer, while more than two fifths 42.8%mentioned fear of the screening process as their reason. The fear of cancer and cancer screening procedures has also been cited as a major consideration in the decision to screen or not screen for PCa in other studies in Ghana (Yeboah-Asiamah, Yirenya-Tawiah, & Baafi, Ackumey, 2017); Nigeria (Ogundele & Ikuerowo, 2015); Uganda (Nakandi et al, 2013); Tanzania (Bugoye et al, 2019) and Kenya (Korir, Okerosi, Ronoh, Mutuma & Parkin, 2015; Wachira, Menganyi, & Mbugua,

2018). While this fear has been attributed to myths and misconceptions on cancer in general, and on the screening processes and procedures, this study attributes the fear largely to lack of awareness. This attribution is based mostly on the qualitative data obtained from FGDs, as evidenced by the statements below:

> *"I heard that those tests involve a minor surgery of removing some part of the penis. What if they interfere with my sexual performance"*

> *"I will only screen if it is a male doctor, but if is a woman I will feel ashamed to screen"*

> *"Some men have cited fear of the needle used. One said his penis can't be injected for fear of not urinating well…"*

In view of the aforementioned, this study concurs with Nakandi, et al. (2018); Pedersen, Armes and Ream, (2018); Weinrich et al., (2018); Steele et al. (2020); who also found an association between poor uptake of screening for PCa and awareness.

Other reasons for not screening that were captured in **Table 4.8** include no family history of PCa or cancer in general (51.3%). Family history is believed to increase the risk for PCa (Wood, Rehman & Bedrosian, 2020), however men are encouraged to screen as the first stages are asymptomatic. Moreover, family history is not the only risk factor to screening. Respondents also cited not being sure of benefits of screening (30.9%). This explains why not even one respondent could mention early screening as a preventive measure. This implies that a lot need to be done during sensitization to illicit utilization of shared decision

making. The campaigns should incorporate not only encouraging screening but incorporate more knowledge on symptoms, benefits and availability of the screening services.

Data in **Table 4.8** shows majority of the respondents (72.8%) were willing to screen for PCa while (27.2%) were unwilling to screen. The fact that a large proportion of the respondents were willing to be screened for PCa, is an indication that the respondents may have a positive attitude towards screening. This finding is consistent with Ugochukwu, Odukoya, Ajogwu, and Ojewola's (2019) finding in Nigeria, as well as Makori and Mbugua's (2021) in Kenya where majority of the respondents showed positive attitudes towards screening. Gelberg-Andersen & Leake (2010) also highlighted attitude as a predisposing factor since they are values, beliefs and knowledge of the healthcare service system and the impact it may have on individual's predisposition to utilize that care. However, there appears to be a disconnect between willingness to screen, and uptake. This disconnect could be attributed to the negative attitudes highlighted in **Table 4.8**. The disconnect could also be attributed to lack of knowledge on PCa, thus limiting ability for informed decision making.

4.6 Influence of Sociodemographic Factors on Early Screening for Prostate Cancer

Objective Three of the study sought to establish the influence of sociodemographic factors on uptake of PCa screening. This study focused on level of educational attainment, occupation, religious affiliation, and marital status, as guided by the theoretical and conceptual framework. Respondents socio-demographic characteristics were compared to their screening information, and the Chi-square test applied to determine the association between the variables. Where the Chi-square test revealed a significant association, the Cramer's V Test was applied to establish the strength of the association. The results are presented in **Table 4.9**.

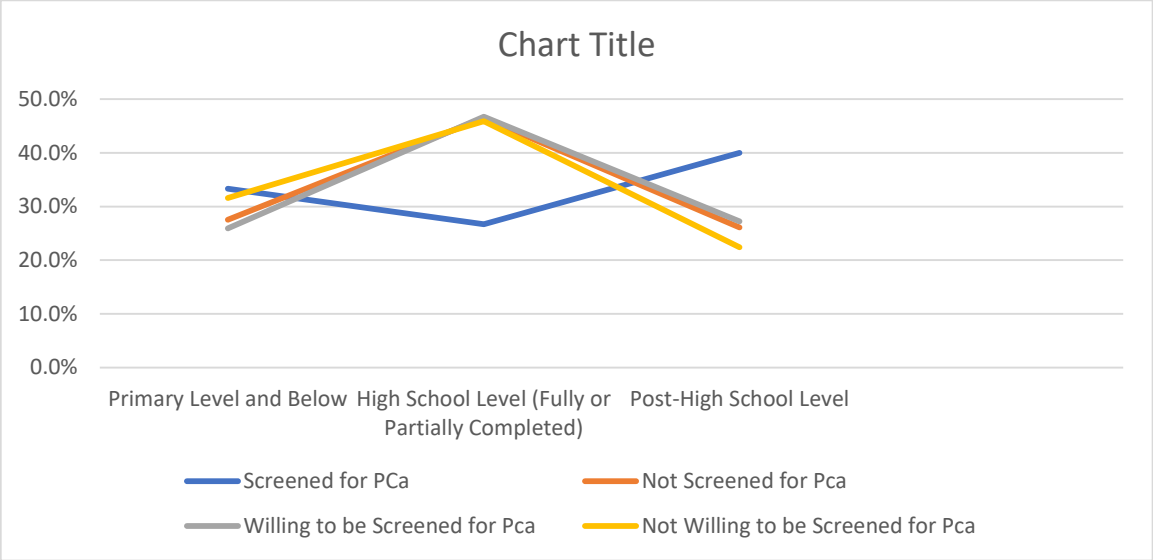
Table 4.9. Association between Socio-demographic Characteristics and Uptake of early screening for PCa

Sociodemographic Characteristics		PCa Screening Uptake		Willingness to Screen	
		Screened	Not Screened	Willing	Not Willing
Level of education Attainment	Primary School and below	5(33.3%)	97(27.5%)	66 (25.9%)	31(31.6%)
	High School (partial or completed)	4(26.7%)	164(46.5%)	119(46.7%)	45(45.9%)
	Post High School	6(40.0%)	92(26.1%)	70(27.2%)	22(22.4%)
Total		15(100%)	353(100%)	255(100%)	98(100%)
X^2 =3.4555, df =6, p=0.0456; φ_C = 0.3142					
Religious Affiliation	Christians	12 (80%)	259 (73.4%)	210 (82.4%)	49 (50%)
	Muslim	2(13.3%)	79(22.4%)	37(14.5%)	42(42.9%)
	African Traditional	1(6.7%)	15(4.2%)	8(3.1%)	7(7.1%)
		15(100%	353(100%)	255(100%)	98(100%)
X^2 = 9.54, df=8, p=0.0421					
Occupation	Not Employed	2(13.3%)	62(17.6%)	50(19.6%)	12(12.2%)
	Self-Employed	3(20%)	118(33.4%)	95(37.3%)	23(23.5%)
	Casual labourer	4(26.7%)	132(37.4%)	80(31.4%)	52(53.1%)
	Permanently employed	6(40%)	41(11.6%)	30(11.8%)	11(11.2%)
		15(100%	353(100%)	255 (100%)	98 (100%)
X^2=9.54, df=9, p=0.0014; φ_C = 0.5347					
Marital Status	Married	3(20%)	75(21.2%)	45(17.6%)	30(30.6%)
	Divorced/Separated	2(13.3%)	93(26.3%)	73 (28.6%)	20(20.4%)
	Widowed	3(20%)	82(23.2%)	57 (22.4%)	25(25.5%)
	Never Married	7(46.7%)	103(29.2%)	80 (31.4%)	23(23.5%)
		15(100%)	353(100%)	255(100%)	98(100%)
X^2 =15.789, df=9, p=0.023 φ_C = 0.1739					

As can be seen in **Table 4.9**, there is a significant association between level of educational attainment and uptake of screening for PCa (X^2 =3.4555, df =6, p=0.0456). However, when subjected to Crammer's V test, the association between level of educational attainment and uptake of screening for PCa is found to be rather weak, with a Cramer's phi coefficient value of 0.3142. This weak association could be as a result of the fact that the association

between the two variables is not positive, and is actually skewed, as illustrated in **Figure 4.1.**

Figure 4.1: Distribution of screening patterns in relation to levels of educational attainment.



Data in **Table 4.9** reveals that the uptake of PCa screening does not increase with the level of educational attainment, and therefore the relationship between the variables is not positive. Respondents with post-high school education form the largest proportion of those who had screened for PCa. This number was almost similar to that of respondents with primary level of education and below, who had screened for PCa. In a similar pattern, data in **Table 4.9** shows that respondents who had not screened for PCa were almost evenly distributed between those with primary level of education and below; and those with post-high school education (27.5% and 26.1% respectively). Respondents with post high school level of education formed the largest proportion of those who had been screened (40%) and

also who were willing to screen (27.2%). This pattern is replicated in relation to willingness to screen, as illustrated in **Figure 4.1.** A similar study by (Kinyao and Kishoyian, 2018) also highlighted that majority of the respondents who screened were more educated

The results displayed in **Figure 4.1** could be associated with the fact that health education is not one of the key subjects in Kenya's basic education curriculum. For this reason, knowledge on the benefits of cancer screening in general may only be obtained from alternative sources of information, as shown in **Table 4.2** on page 34. Furthermore, level of education influences screening services in that, more educated individuals are able to comprehend information and act on it to make informed decisions. One of the FGD discussant had this to say:

> *I have come to only hear about PCa among my friends who had experienced symptoms. It was not taught in school and when I first saw someone ailing from it, I thought the person was cursed".*

A key informant had this to say:.

> *"Most of patients whom we urge to screen for PCa normally get shocked at first on the kind of disease that is."*

Table 4.9 also shows that there is no significant association between religious affiliation and uptake of PCa screening ($X^2 = 9.54$, df=8, p=0.0421), This finding is incongruent with Dickey, et al (2017), Lee et al (2016), Laweh and Manortey (2021) as well as Mbugua et al (2020); who all found a strong association between religious affiliation and uptake of PCa screening in USA, South Korea, Ghana and Kenya respectively. Other studies, including

Bache, Bhui, Dein and Korszun (2012) in USA, Terwase, Asuzu, & Mstor (2014) in Nigeria; Mbugua (2020) in Kenya, have reported inconclusive results regarding the relationship between religious affiliation and uptake of PCa screening. Evidently, in this study, the relationship between religious affiliation and uptake of PCa screening was not prominent, probably because of the cosmopolitan nature of the study area. Notably, the studies mentioned in the preceding paragraph, which found a strong association, were all conducted in rural settings. Furthermore, all the aforementioned studies that reported inconclusive results were conducted in urban settings.

Regarding occupation, **Table 4.9** shows a significant association between type of employment and uptake of PCa screening (X^2=9.54, df =9, p=0.0014). When subjected to Cramer's V test, it further reveals a strong and positive association between occupation and uptake of PCa screening, with a Cramer coefficient value of 0.5347. This result could be attributed to the benefits that come with permanent employment, especially health insurance and other forms of medical cover. As shown in the discussion subsequent to **Table 4.8**, health insurance is a key consideration when it comes to access to healthcare services, including screening for non-communicable diseases such as PCa. In similar findings, Al-Hanawi, Mwale, and Kamninga (2020) also aver that permanent formal employment also increases access to medication and hospitalization which in turn enables people obtain better healthcare, including early screening for non-communicable diseases. One of the Key Informants had this to say

> *"Most of the patients who inquire about other services normally have insurances unlike those who use cash. Ones with cash go as far as even diagnosing themselves*

so that they end up not overspending. For instance, one comes with a fixed mind that he has malaria and would just want to treated for that…"

Subsequently, lack of employment may result in meagre income of individuals to the extent that they may not find it easy to organize screening for PCa from private clinics. This was also confirmed by Sritharan, Macleod, Harris, Cole, Harris, Tjepkema, Peters and Demers (2018), who stated that white collar jobs are associated with higher education and income which in turn leads to better accessibility to health resources.

Table 4.9 further shows that there is a significant relationship between marital status and uptake of PCa screening (X^2 =15.789, df =9, p=.023). Nonetheless, Cramer's V test revealed that this association, while significant, was weak, at φ_c= .1739. In this regard, the findings of this study differ from the results of Salmon, et al (2022), who all posit that being married increases one's likelihood of early screening for non-communicable diseases. Furthermore, marriage has also been associated with better healthcare-seeking behavior by Shivachi and Otengah (2017). In addition, Kinyao et al (2018) as well as Kirungia, (2019) argue that the family is a strong social support group that is influential in healthcare decision making. Aizer, Chenn, McCaryhy, Mendu, Koo, Wilhite, Graham, Choueiri, Hoffman, Martin, Hu and Nguye (2013), also reported that married patients were less likely to die as a result of cancer because of the social support they get from the family members. The aforementioned notwithstanding, men have generally been associated with poor healthcare-seeking behavior as affirmed by (Dowden, Mushamiri, McFreely, Apat, Sacks & Amor, 2019; Mthembu, 2015; Lubegaet al., 2015). This poor healthcare-seeking behavior persists despite one's marital status (Olarewaju et al., 2019; Azmi, Mahmud,

Islam & Hasan 2022). The poor healthcare-seeking behavior could be the reason for the data in **Table 4.9**, which shows a weak association between marital status and uptake of PCa screening.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The chapter provides a summary of the analyzed findings with conclusions and recommendations drawing relevant implications of the results. Areas that require further research are also discussed in detail in this chapter. This study was set out to investigate the social determinants of early screening for prostate cancer: a study of Nairobi County.

5.2 Summary of Key Findings

In the first study objective, the study sought to find out the source of information on PCa. The largest proportion of the respondents (46.5%) mentioned social media as their source of information on PCa in **Table 4.3** and this in turn contributed to inadequate knowledge on the disease and misinformation which contributed to the low uptake of screening For instance, the respondents identified causes of PCa in **Table 4.4** yet research that has been carried out have not been able to identify causes rather only risk factors associated with PCa. High risk of PCa was also associated with 55 years to 60 years yet these were ages and this in turn couldn't encourage men to screen early because they didn't consider to be at risk. **Table 4.5**.

Table 4.6, also highlighted respondent's inability to identify Early screening as a preventive measure, yet the campaign awareness conducted have been geared towards that. **Table 4.7,** majority (44.7) couldn't identify any symptoms while rest of the symptoms mentioned were not exclusively associated PCa, some associated with later stages of PCa and some associated with side effects of PCa treatment.

On examining the attitudes on PCa screening, the study found out that there was negative attitude towards PCa screening due to low knowledge levels on the symptoms and the high cost of screening. Aproximately more than half (95.93%) of the respondents had not been screened for PCa while (4.07%) had been screened. Reasons for undergoing screening were majorly upon advice by a doctor 53.3% while having no symptoms (72.8%) and thus no need to for screening and cost of screening (62.6%) an indication of negative attitude towards screening uptake. in **Table 4.8.**

The third objective sought to find out Influence of socio-demographic factors on PCa screening among men in Nairobi County. The study revealed a significant association between There was significant and positive association between occupation and uptake PCa screening. (X^2=9.54, df=9, p=0.0014). Cramer coefficient value of 0.5347 in **Table 4.9**. This result could be related to the benefits that come with permanent employment, especially health insurance and other forms of medical cover.

5.3 Conclusions

In the first study objective, major conclusions were that there There's low knowledge levels on specific aspects of PCa. This was due to the sources of information that was being relied on mostly; social media.

In the second study objective, the study established that the attitudes towards early screening for PCa were generally negative, probably as a result of low knowledge levels on the symptoms and the high cost of screening. However, a large proportion of the respondents were willing to be tested, signaling a disconnect between willingness to

screen and actual uptake. This disconnect is attributable to the negative attitudes towards early screening.

In the third study objective, there was significant and positive association between occupation and uptake PCa screening. (X^2=9.54, df=9, p=0.0014). Cramer coefficient value of 0.534 screening as a result of the healthcare opportunities associated with health insurance and medical cover that comes with formal employment.

5.4 Recommendations

The study recommends that the Ministry of Health should set a day for PCa to sensitize men on PCa as it has been done for other Non-Communicable Diseases.

The Ministry of Health to develop policies that make it mandatory for patients to go through treatment literacies before any service is provided in health facilities.

The Ministry of Health to develop a policy to allow for waiver on medical covers to allow for other procedures that may be more expensive to afford.

5.5 Areas for Further Research

The study suggest Research should be conducted on risk or predisposing factors for PCa screening.

A study on factors influencing uptake of screening such as stigma and cultural factors and the study should be carried out countrywide across different culture before generalization of the findings are made.

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APPENDIX I: QUESTIONNAIRE

Section A: Introduction and Consent

My name is Ann Osewe. I am currently undertaking a Master of Arts Degree in Sociology at Rongo University. To fulfill part of the requirements of the program, I am conducting a research study titled "***Social Determinants of Early Prostate Cancer Screening: A Study of Nairobi County***." This is an academic research study and your participation is voluntary. Confidentiality will also be highly upheld. Kindly assist me fill the questionnaire.

Signed

…….

Ann Osewe

PARTICIPANT'S CONSENT

I have understood the purpose of this study, after it was clearly explained to me by the researcher. I have also been reassured about my rights to confidentiality and anonymity. I understand that there shall be no monetary reward for participating in this study. With this knowledge, hereby give my consent.

……....	……..…….	……	……
Signature	Name (Optional)	Date	Contact (Optional)

Section B: Demographic Data

1. Age (Please tick One)

a) 35 - 39 [ ]
b) 40 - 44 [ ]
c) 45 – 49 [ ]
d) 50 – 54 [ ]

2. Location of your residence:

a) Woodley/Kenyatta [ ] b) Laini Saba [ ]
c) Mountain view [ ] d) Kangemi [ ]

3. For how long have you lived in your current location?

a) 1-2 years [ ] b) 2-5years [ ] c) 5-10 years [ ] d) 10-15 years [ ] e) 15-20 years [ ] f) 20 + years [ ]

4. Religious affiliation (*Please tick one)*

a) Christian [ ] b) Muslim [ ] c) Hinduism [ ]
d) Pagan [ ] e) Budhism [ ] f) Others specify……

5. Highest level of educational attainment (*Please tick one)*

a) No schooling [ ]
b) Some primary school [ ]
c) Completed primary school [ ]
d) Some secondary school [ ]
e) Completed secondary school [ ]
f) Post secondary school certificate/diploma [ ]

Section C: Knowledge of Prostate Cancer

Knowledge on PCa screening among men between ages 35 – 50 years

3. Have you ever heard of prostate cancer?

Yes ( ) No ( )

4. How did you get to know/hear about PCa?

a) A Friend [ ] b) TV [ ]

c) Social Media [ ] d) Doctor/Nurse [ ]

e) Relative [ ]

5. In the Table below, please list the causes of prostrate cancer that are known to you, starting with the most common to the least common cause.

a)	
b)	
c)	
d)	
e)	
f)	
g)	
h)	

6. On a scale of 1 – 5, how would you rate the risk of the following groups of people getting prostrate cancer? (*Where 1=Very low risk; 2= low risk; 3=Average risk; 4=High risk and 5=Very high risk*)

No.	Group of people	1	2	3	4	5
a)	35-39 years					
b)	40-44 years					
c)	45-49 years					
d)	50-55 years					
e)	55-60 years					

7. Do you know the preventive measures for prostrate cancer?

a) Yes [ ] b) No [ ]

ii) If yes, please list the preventive measures in the Table below, starting with the most effective to the least effective

No.	PCa preventive measures
1	
2	
3	
4	
5	
6	

8. Do you know any symptoms of prostate cancer? (*Please tick one)*
a) Yes [ ] b) No [ ]

ii)If Yes, please list them in the Table below

No.	Symptoms
1	
2	
3	
4	
5	
6	

9. Do you know strategies for preventing prostate cancer? (*Please tick one)*
b) Yes [ ] b) No [ ]

ii)If Yes, please list them in the table below

No.	Prevention strategies
1	
2	
3	
4	
5	
6	

Section D: Attitudes towards Screening for Prostate cancer

10. Have you ever been screened for prostrate cancer? (*Please tick one)*
Yes [ ] No [ ]

ii)If Yes, why did you get screened? List your reasons in the Table below

No.	Reasons for deciding to be screened
1	
2	
3	
4	
5	
6	

a) If No, why have you not been screened? List your reasons in the Table below.

No.	Reasons for not being screened
1	
2	
3	
4	
5	
6	

SECTION E: The Influence of sociodemographic factors on early PCa screening

11. What is your occupation?.....

12. What is your main source of income?.....

13. To which religion do you belong?

……

14. What is your marital status? *Please tick one*

Married ( ) Never married ( ) Divorced ( ) Separated ( ) Widowed ( )

15. Generally, what are your views on Prostate Cancer Screening?

ii) Please explain……..

……

……

……

…….

------ The End ------

APPENDIX II: KEY INFORMANT INTERVIEW GUIDE

Research Title: Social Determinants of Early Prostate cancer Screening: A Study of Nairobi County, Kenya

Date of the Interview…… Interviewer Initials…….

Position (title) of the key informant…… Institution: ……

1. How would you rate the level of knowledge on prostate cancer in this locality? (*probe for sources of knowledge, and knowledge on specific aspects, such as prevention, symptoms, etc)*
2. What is the uptake of prostate cancer screening in this locality? (*probe for details on prevalence and characteristics of those who come for screening, as well as availability and uptake of free screening services)*
3. What are the attitudes towards early screening for prostate cancer? (*probe for the things that inform these attitudes)*
4. Which sociodemographic factors influence uptake of prostate cancer screening? (*probe for religious affiliation, marital status, level of educational attainment, and occupation)*

APPENDIX III: FOCUS GROUP DISCUSSION GUIDE

Research Title: Social Determinants of Early Prostate Cancer Screening: A Study of Nairobi County, Kenya

Date of FGD…… Venue: ……..…. Time: ……..

Name of Facilitator:…….. Rapporteur: ……..

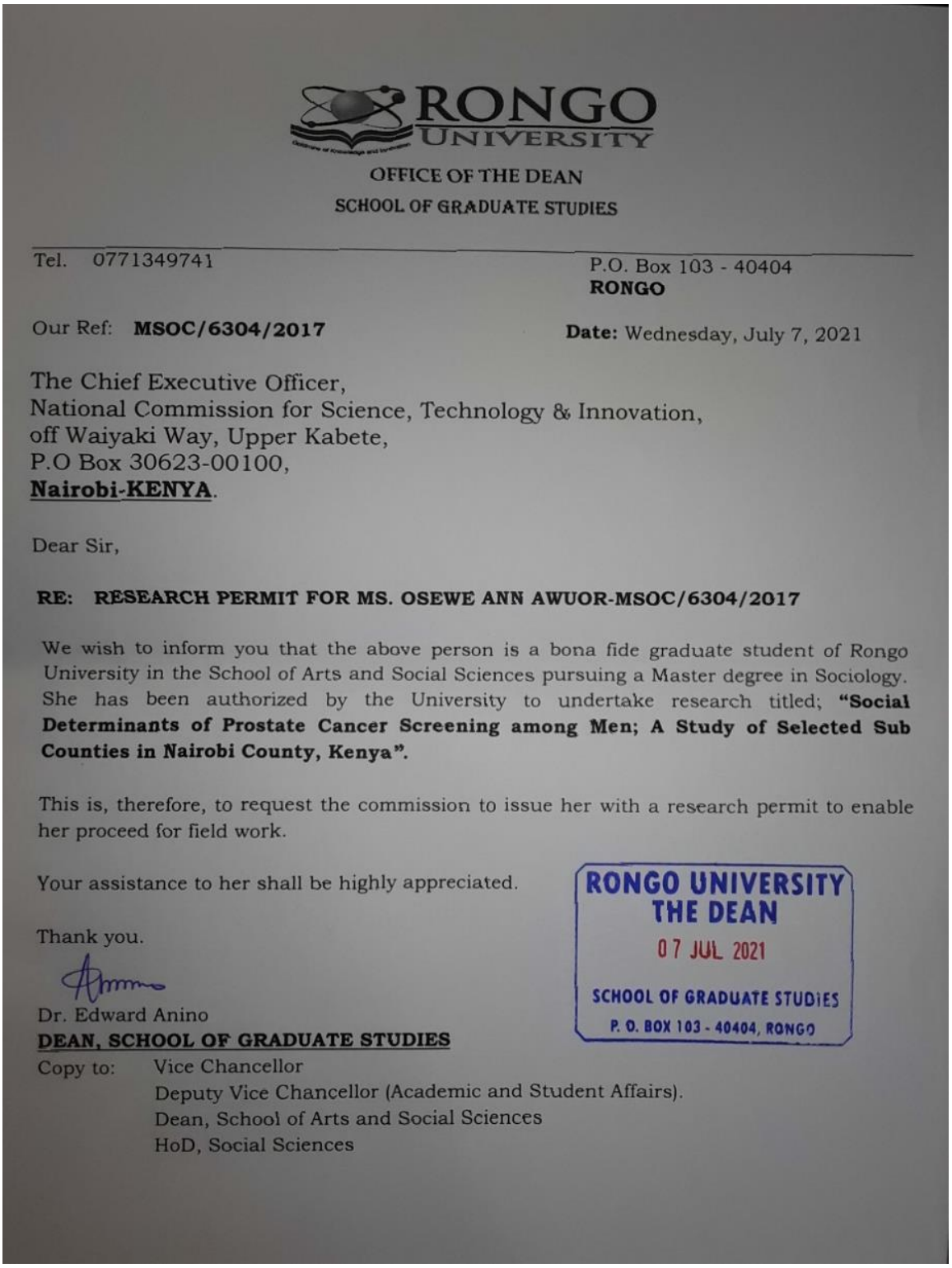
Number of Participants: ……. (Attach Attendance List)

General Instructions

- *The facilitator shall invite one of the discussants to open the session with a word of prayer*
- *Participants shall be invited to the sessions, and asked to introduce themselves.*
- *After self-introductions, the facilitator shall explain the purpose of the session, then invite participants to formulate and agree on ground rules.*
- *The facilitator shall emphasize on the ethical issues, including anonymity, confidentiality and non-discrimination.*
- *The facilitator shall encourage each participant to contribute in the discussion, even if it means printing them out and requesting them to speak*
- *The session shall run for between 45 and 90 minutes*

1. How would you rate the level of knowledge on prostate cancer in this locality? (*probe for sources of knowledge, and knowledge on specific aspects, such as prevention, symptoms, etc)*
2. What is the uptake of prostate cancer screening in this locality? (*probe for details on prevalence and characteristics of those who come for screening, as well as availability and uptake of free screening services)*
3. What are the attitudes towards early screening for prostate cancer? (*probe for the things that inform these attitudes)*
4. What kind of people are most likely to go for prostate cancer screening? (*probe for religious affiliation, marital status, level of educational attainment, and occupation)*

APPENDIX IV: RONGO UNIVERSITY INTRODUCTION LETTER



RONGO UNIVERSITY

OFFICE OF THE DEAN

SCHOOL OF GRADUATE STUDIES

Tel. 0771349741

P.O. Box 103 - 40404
RONGO

Our Ref: **MSOC/6304/2017**

Date: Wednesday, July 7, 2021

The Chief Executive Officer,
National Commission for Science, Technology & Innovation,
off Waiyaki Way, Upper Kabete,
P.O Box 30623-00100,
Nairobi-KENYA.

Dear Sir,

RE: RESEARCH PERMIT FOR MS. OSEWE ANN AWUOR-MSOC/6304/2017

We wish to inform you that the above person is a bona fide graduate student of Rongo University in the School of Arts and Social Sciences pursuing a Master degree in Sociology. She has been authorized by the University to undertake research titled; **"Social Determinants of Prostate Cancer Screening among Men; A Study of Selected Sub Counties in Nairobi County, Kenya".**

This is, therefore, to request the commission to issue her with a research permit to enable her proceed for field work.

Your assistance to her shall be highly appreciated.

RONGO UNIVERSITY
THE DEAN
07 JUL 2021
SCHOOL OF GRADUATE STUDIES
P. O. BOX 103 - 40404, RONGO

Thank you.

Dr. Edward Anino
DEAN, SCHOOL OF GRADUATE STUDIES

Copy to: Vice Chancellor
Deputy Vice Chancellor (Academic and Student Affairs).
Dean, School of Arts and Social Sciences
HoD, Social Sciences

APPENDIX V: RESEARCH PERMIT

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **846087**

Date of Issue: **09/August/2021**

RESEARCH LICENSE

This is to Certify that Miss.. Ann Linet Awuor Osewe of Rongo University, has been licensed to conduct research in Nairobi on the topic: Social Determinants of Prostate Cancer Screening among Men; A study of selected Sub Counties in Nairobi County, Kenya. for the period ending : 09/August/2022.

License No: **NACOSTI/P/21/12189**

846087

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

NAIROBI CITY COUNTY

HEALTH, WELLNESS AND NUTRITION

Office of the County Chief Officer-Public Health and Medical Services

==========

RER: LETTER OF ACCESS

This is to grant Osewe Ann Awuor permission and access to conduct research at any of the health facilities within Nairobi County for a period of two weeks. The Public Health Office and Medical Services Office have reviewed the research proposal and approved research study materials and research protocol including any letters of consent or assent and understand what the study titled: *''Social Determinants of Early Screening for Prostate Cancer: A Study of Nairobi County, Kenya"* entails and expectations.

If the Public Health Office and Medical Services Office of Nairobi County have any further questions about this research study the offices understand that Osewe Ann Awuor can be reached at **0711569447** or via e-mail at anneosewe@gmail.com

Sincerely,

DR. IRENE MUCHOKI
Chief Officer Medical services & Ag. CCO Wellness Nutrition and school feeding

TELEPHONE' +254 78S 624 489; •254 7y8 041 292 I EMAIL: INFO• NAIROBLGO.KE | CITY HALL. CITY HALL WAY, P.O. BOX 50075 00100, NAIROBI, KE>YA

APPENDIX VI: NAIROBI COUNTY MAP