THE ROLE OF FEMALE PARTNER LED INITIATIVE ON PROMOTING PROSTATE CANCER SCREENING INTENTIONS AMONG MEN AGED 40-69 YEARS IN RURAL KIAMBU COUNTY, KENYA

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DECLARATION AND APPROVAL

I, Peterson Kariuki confirm that this research thesis for a Doctor of Philosophy degree is entirely original and has not been provided to any other university or institution of higher learning.

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Supervisors Approval

We approve that the student has worked on this thesis under our supervision as the assigned supervisor.

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DEDICATION

For my daughter, Bobo—your presence gives my life meaning and drives me to do my best.

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ABSTRACT

Prostate cancer (PC) is a significant global health concern, particularly in Africa, where late diagnosis often leads to poor outcomes. This study aimed to evaluate the role of female partner-led initiatives in promoting the intention to screen for cancer of the prostate among men in rural Kiambu County, Kenya. A randomized controlled trial was conducted among men aged 40-69 years. Participants were randomly assigned to receive either gain-framed, loss-framed, or control brochures. Data were collected using structured questionnaires and analyzed using structural equation modeling and difference-in-difference analysis. Quantitative data was analyzed using STATA version 15 Structural equation modeling was used to assess the difference in the influence of independent variables on PCS intention between the control and intervention groups at baseline and at the end line. The difference-in-difference analysis was used to assess the magnitude effect of the interventions on PCS intention, knowledge of PC, attitude, perception, and culture toward PCS. The study found that partner-led loss-framed and gain-framed interventions had a significant influence on PCS intention among men, with the loss-framed group having considerably higher rates (54.9%) of intention than those in the gain-framed group (48.4%) post-intervention. The intervention groups had a significantly higher mean difference in knowledge about cancer of the prostate than the control group, with the group treated using gain-framed and loss-framed brochures having a mean DID of 4.989 (3.561 – 6.418) and 5.264(3.804 – 6.724), respectively. Attitudes towards prostate cancer screening differed significantly among respondents in the control and intervention groups ($p<0.05$). Slightly above half of the respondents (52.7%) in the group intervened using gain-framed brochures had a positive attitude towards cancer of the prostate screening, and close to half (46.2%) of respondents in the group treated with loss-framed brochures had a positive attitude towards cancer of the prostate screening. Fatalism belief decreased significantly in the intervention groups that were treated with gain-framed and loss-framed brochures compared to the control group, as indicated by a mean DID of -2.376 (-2.988 to -1.765) and -2.774(-3.385 to -2.163), respectively. The study concluded that the use of loss-framed messages on brochures is more effective in promoting PCS screening, the partner-led loss-framed brochure intervention had slightly more influence on general knowledge of cancer of the prostate and knowledge on early signs of PC while the gain-framed brochure method had a more influence on knowledge on PC screening methods. The results suggest that Gain-framed messages seem to be particularly effective in addressing psychological barriers like fatalism, which can be deeply ingrained and difficult to change. These findings highlight the potential of female partner-led interventions in promoting PC screening among men. The study suggests that a combination of gain-framed and loss-framed messaging, coupled with increased awareness and education, could be effective in improving PC screening rates and outcomes. This highlights the need for a multifaceted approach by concerned stakeholders to enhance the uptake of PC screening Further research is needed to explore the long-term impact of these interventions and to identify other strategies for addressing barriers to PC screening in diverse populations.

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LIST OF ABBREVIATIONS AND ACRONYMS

AFCRN- Africa Cancer Registry Network.

GLOBCAN- Global Cancer Observatory.

FGDs- Focused Group Discussions.

IARC- International Agency for Research on Cancer.

IREC- Institutional Ethics and Review Committee.

KII- Key Informant Interview.

KNCCS- Kenya National Cancer Control Strategy.

KNCSG- Kenya National Cancer Screening Guideline.

MKU- Mount Kenya University.

NACOSTI- National Commission for Science Technology and Innovation.

PC- Prostate Cancer.

SPSS- Statistical Package for Social Sciences.

SSA- Sub-Saharan Africa.

WHO- World Health Organization.

OPERATIONAL DEFINITION OF TERMS

Attitude- Participants' perception of prostate cancer regarding early detection of cancer of the prostate.

Awareness- The state of being informed or being aware of prostate cancer signs and symptoms

Barriers Refer to factors that act as obstacles that prevent access to prostate cancer screening services.

Brochures This is a magazine or a thin book with pictures that provide information about cancer of the prostate awareness, signs and symptoms as well as screening services available.

Facilitators Refer to a person, factors, or resources that can enable or support the study. Facilitators can help ensure effective data collection, build trust with participants, and enhance the overall success of the study.

Gain framed brochure A gain frame brochure focuses on the positive outcomes or benefits that result from engaging in a behavior or purchasing a product. It highlights what people can *gain* by taking a specific action.

Knowledge Refers to having adequate and the right information concerning prostate cancer.

Loss framed bronchure	A loss frame brochure highlights the potential risks or negative outcomes that could occur from *not* taking action. It emphasizes what people might *lose* if they do not adopt the recommended behavior.
Message frame	refers to the process of selecting and the manners in which information is presented related to prostate cancer screening.
Prostate cancer-	An adenocarcinoma that impacts the gland of the prostate in the male reproductive system.
Prostate Specific Antigen-	A crucial marker for prostate tumors that is created by the prostate gland's lining cells.
Screening	Refers to the process of training intending to find an illness such as cancer in individuals who present without showing any symptoms of that disease.
Uptake of PC screening	Refers to the process of having undergone a prostate cancer test by use of various prostate cancer screening methods.

CHAPTER ONE

1.1 Study Background

One of the leading causes of disease and mortality for men around the world is cancer of the prostate. According to the most recent statistics, there were over 1.4 million new cases of cancer of the prostate reported in 2020, and 375,000 of those cases resulted in death (Boyle et al., 2020). Sub-Saharan Africa has high rates of prostate cancer mortality and prevalence, but the information that is accessible is still scattered and insufficient, making it difficult to assess the true scope of the issue. In many African countries, uptake of PSA testing and other screening procedures is still low, ranging from 0% to 11% (Wasike & Magoha, 2017).

Cancer of the prostate incidence rates tend to increase with age, with the highest incidence rates documented in African people aged ≥ 70 years and above(Mutua et al., 2017a). Furthermore, adenocarcinoma of the prostate mortality rates in sub-Saharan Africa are disproportionately higher than in other regions, with an estimated 29.7 and 16.3 cases per 100,000 people for incidence and mortality, respectively(Adeloye et al., 2016a). The lack of screening and early identification techniques may be responsible for the high mortality rates. Additionally, the adoption of Western lifestyles and increased life expectancy are thought to contribute to the rise in adenocarcinoma of the prostate incidence rates in sub-Saharan Africa(Wang et al., 2022a). Cancer of the prostate is estimated to cause more than 57,040 deaths among African men by 2030(Adeloye et al., 2016b).

The majority of people living in Kenya (87.5%) present to medical facilities with advanced-stage prostate cancer, which is alarming(Mutua et al., 2017a). A lack of awareness, knowledge, and unfavorable attitudes toward prostate cancer may be a factor in the low rates of screening and early identification in African nations(Wambalaba et al., 2019). Identifying

and addressing the underlying personal, behavioral, social, and cultural factors that contribute to low uptake rates are crucial for improving outcomes.

Efforts to improve prostate cancer outcomes in sub-Saharan Africa are further complicated by limited healthcare infrastructure, socioeconomic barriers, and disparities in access to healthcare services. In many rural areas, access to diagnostic facilities and specialized medical care is restricted, leading to delays in diagnosis and treatment(Barton, 2013). Furthermore, the stigma associated with cancer in many African cultures may discourage men from seeking medical attention or participating in screening programs. (Odedina et al., 2009) To address these challenges, it is crucial to develop culturally sensitive health education programs and implement community-based interventions that can effectively reach at-risk populations. Building partnerships with local healthcare providers and community leaders can also enhance the acceptance and uptake of cancer of the prostate screening and early detection measures(Rebbeck et al., 2013).

Age-standardized rates (ASR) for cancer of the prostate in Kenya are 40.6 per 100,000, accounting for 17.3% of all male cancers and 10.2% of the total number of cancers in the nation(Enemugwem et al., 2019a). Prostate cancer screening rates in Kenya remain low, with only 4.1%–11% of males undergoing screening (Enemugwem *et al*., 2019). Moreover, most patients seeking medical attention in Kenyan health facilities are at an advanced stage of the disease, with 87.5% presenting with stage III(C) or IV(D) cancer(Mutua et al., 2017b). Despite widespread education campaigns aimed at increasing awareness of adenocarcinoma of the prostate in Kenya, screening rates remain low(Schröder et al., 2012). Therefore, exploring why few men undergo screening despite knowledge of the disease is vital

More than 80% of prostate cancer patients in Kenya receive their diagnosis at a late stage when the tumor is growing larger and challenging to control. This negatively affects their

clinical outcome(Wambalaba et al., 2019), which is linked to increased mortality rates and a reduced survival rate. In nations with developing economies, such as Kenya, where prostate cancer mortality rates are rising, the uptake of adenocarcinoma of prostate screening is still low due to a number of reasons, including, low awareness, inadequate knowledge, and unfavorable beliefs. (Wambalaba et al., 2019). To achieve Kenya's cancer control strategy in 2017–2022, it is essential to improve early detection of adenocarcinoma of the prostate through screening. However, studies in Kenya have revealed low prostate cancer screening uptake, ranging from 1.3% to 2.6%(Wambalaba et al., 2019). Identifying factors contributing to low screening rates in Kenya is critical for developing effective strategies to improve uptake and reduce the incidence of advanced prostate cancer.

1.2 Statement of the Problem

Prostate cancer (PC) is a significant global health concern, particularly in developing countries like Kenya, where it is the most prevalent cancer among men (Esperto et al., 2024; Wambalaba et al., 2019). Despite its prevalence, PC is often diagnosed at an advanced stage, leading to poor clinical outcomes and increased mortality rates (Mutua et al., 2017a, 2017b; Wambalaba et al., 2019). An examination of Kenya's population and health survey regarding the prevalence of prostate cancer screening. Overall, 4.4% of people had undergone PCa screening(Okyere et al., 2023).

Several factors contribute to low screening rates for PC in Kenya, including low awareness, limited knowledge, unfavorable attitudes, and cultural stigma (Wambalaba et al., 2019). Additionally, the lack of accessible healthcare services, particularly in rural areas, can hinder early detection and treatment (Barton, 2013). In a recent study done in Kiambu County, only,5% of men had undergone prostate cancer screening indicating the need for intervention to enhance prostate cancer screening(Mbugua et al., 2021).

Given the critical role of early diagnosis in improving outcomes for PC patients, it is imperative to explore effective strategies to increase screening rates (Van Jaarsveld et al., 2015). Previous research has highlighted the influence of female partners in health decision-making, suggesting that they can play a significant role in encouraging men to adopt healthy behaviors, including seeking preventive care (Andrykowski & Pavlik, 2011; Van Jaarsveld et al., 2015).

This study aimed to investigate the potential of female partner-led initiatives in promoting provider conversations about PC screening among men in rural Kiambu County, Kenya. By leveraging the influence of female partners, this study sought to address the critical issue of late diagnosis and improve outcomes for men with PC.

1.3 Study Purpose

The purpose of this study was to assess the effectiveness of female partners in encouraging men to consider prostate cancer screening. The study explored whether having female partners promote screening increases men's awareness, willingness, and intention to get screened.

1.4 Study Objectives

1.4.1 Broad Objective

The main objective of this study was to determine the role of female partner-led initiatives in promoting prostate cancer screening intentions among men aged 40-69 years in Rural Kiambu County, Kenya

1.4.2 Specific Objectives

1. To assess the effects of female partner-led brochures on the intention to screen for prostate cancer among men aged 40-69 years in rural Kiambu, Kenya.

2. To determine the effects of female partner-led brochures on knowledge and awareness of prostate cancer among men aged 40-69 years in rural Kiambu, Kenya.
3. To determine the effects of female partner-led brochures on attitudes towards prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.
4. To determine the effects of female partner-led brochures on cultural beliefs towards prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.
5. To determine the combined effects of knowledge, attitude, perception, and cultural beliefs on the intention to undergo prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.

1.5 Null Hypothesis

1. Ho1: Female partner-led brochures have no significant effect on the intention to screen for prostate cancer among men aged 40-69 years in rural Kiambu, Kenya.
2. Ho2: Female partner-led brochures have no significant effect on knowledge and awareness of prostate cancer among men aged 40-69 years in rural Kiambu, Kenya.
3. Ho3: Female partner-led brochures have no significant effect on attitudes towards prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.
4. Ho4: Female partner-led brochures have no significant effect on cultural beliefs towards prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.

5. Ho5: Combined, knowledge, attitude, perception, and cultural beliefs have no significant effect on the intention to undergo prostate cancer screening among men aged 40-69 years in rural Kiambu, Kenya.

1.6 Justification and Significance of the Study

The drive of this research was to assess the impact of female partner-specific brochures, message frames, and discussions on Kenyan men's intentions to be screened for prostate cancer. Despite government efforts to promote early screening, the uptake of adenocarcinoma of the prostate screening services remains low, with a national uptake level of 4.1%(KDHS, 2022). There has been a noticeable increase in adenocarcinoma of the prostate among men living in Kiambu County, raising public health concerns; however, the uptake of screening for adenocarcinoma of the prostate is believed to be only 5%, which is incredibly low. Nevertheless, this study aligned with the Kenya Big 4 agenda goal of affordable health care, which calls for a sufficient uptake of preventive screening services. This study was also aligned with Kenya Vision 2030, which calls for early adenocarcinoma of the prostate screening to prevent the associated morbidity and mortality. Finally, this study was also aligned with the Kenya National Cancer Screening Guidelines, which advocate for sufficient uptake of available adenocarcinoma of the prostate screening services. This study aimed to provide insight into the impact of female partners' lead initiatives and educational interventions on the uptake of prostate services and associated barriers. The present research offers current knowledge and interventions on strategies that can be used to boost men's awareness of cancer of the prostate screening in Kenya and elsewhere.

The Ministry of Health and other relevant stakeholders used the study's findings to help them develop strategies to increase educational delivery and public awareness of the value of early

screening. Furthermore, the present research adds to the body of literature by providing detailed findings on the impact of initiatives led by female partners on urging provider discussions about screening for cancer of the prostate among men, an area for which there is currently a lack of data. By giving policy-making stakeholders comprehensive information on the impact of female partners' lead initiatives on promoting provider discussions about cancer of the prostate screening, the study's findings also contributed to the achievement of SDG Goal 3: Good Health and Well-Being. This knowledge can be used to create policies and initiatives that will enhance the detection and treatment adenocarcinoma of the prostate, ultimately lowering the burden of the disease and improving the well-being and health of men in Kenya.

1.7 Study Scope

1.7.1 Geographical Scope

One of the well-known forty-seven counties in the government of Kenya is Kiambu County. It is located in the center of the country and has a total area of 2543.5 km2, of which 476.3 km2 is covered in forest. The 2019 Kenyan population and housing census report confirmed this finding. Screening for prostate cancer uptake in Kenya's rural areas is typically low, estimated at 1.3%, as opposed to 3.5% in metropolitan areas, which makes rural settings suitable for this study.

1.7.2 Theoretical Scope

The Theory of Planned Behavior, the Health Belief Model, and the Cognitive-Social Health Information Processing Model served as the framework for this study. The health belief model makes it easier to comprehend how behavioral intention leads to behavior acceptance and, finally, to healthy behavior. The Cognitive-Social Health Information-Processing (C-

SHIP) model assists in evaluating how people efficiently and intellectually utilize knowledge about their well-being, risks related to medicine, and therapeutic options, as well as how this information affects whether they act in ways that are beneficial or detrimental to their health. The theory of planned behavior aided in understanding how elevated levels of awareness positively impact perceived susceptibility and severity.

1.7.3 Methodological Scope

This study used a randomized controlled trial design. To conduct the study, groups of female partners were selected from men aged 40 to 69 living in rural Kiambu, Kenya. The female partner groups were then randomly divided into two distinct groups: one group received brochures tailored specifically for female partners, while the other received a control intervention.

1.7.4 Subject Scope

In addition to assessing the effects of female partner-led gain-framed and loss-framed brochure methods on knowledge and awareness about adenocarcinoma of the prostate, the present investigation also sought to ascertain the effects of these methods on perceptions and attitudes regarding prostate cancer screening, as well as the effects of these methods on cultural beliefs regarding the detection of prostate cancer. Finally, the study sought to ascertain the combined effects of knowledge, attitude, perception, and cultural beliefs on the intention of cancer of the prostate screening among men in rural Kiambu, Kenya, aged 40 to 69. The study targeted 278 men for each arm of the study (calculated sample size) in Kiambu County. For the time scope, the study was conducted between 2022 and 2024.

1.8 Study Limitations

1. Attrition bias was expected because this study employed a randomized controlled trial design. This was minimized by recruiting an additional 10% of the sample size. In addition, regular contact with the participants was maintained, which helped maintain their involvement in the study.
2. Assessment bias was expected between the intervention and control arms. Nonetheless, bias was minimized by blinding both the evaluators and respondents.
3. Volunteer bias was projected to occur; however, the researcher made it easier for a wider range of individuals to participate by addressing common barriers such as transportation, childcare, and time constraints. This was done by offering flexible scheduling and covering travel costs.

1.9 Study Delimitations

Due to the lack of information on the influence of female partners' lead initiative in encouraging provider discussions about men's cancers in prostate screening, this study was limited to 278 men in Kiambu County, aged 40–69 years. This study had five specific objectives. This study focused exclusively on Kiambu County, Kenya. The findings might not apply to other Kenyan regions or other nations with dissimilar cultural, socioeconomic, or medical contexts. The study concentrated on men in a particular age range, such as those between the ages of 40 and 70, who are the main candidates for screening for cancer of the prostate. Women who were in unions with men in this age group made up the female partners in question. This study also excluded men who were not in relationships, as the role of female partners is central to the research question. Lastly, the study was limited to two interventions: a female partner-specific brochure and a brochure message frame.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The literature review section of this study provides a detailed analysis of existing information and research gaps regarding men's participation in prostate cancer screening in Kiambu County, Kenya. This chapter provides the theoretical background and conceptual framework that guided the study. A comprehensive review of the study variables, including the aspects that influence prostate cancer screening uptake, was conducted. An empirical review and critique of the literature on this subject follows. The investigation adds to the body of knowledge in this field by recognizing the gaps in existing research. A summary of the chapter's main findings and conclusions is presented at the end of this section.

2.1 General Introduction to prostate cancer

Males frequently develop prostate cancer, but they are extremely curable in the initial phases. The prostate gland, which is located between the penis and bladder, is where it starts. Although the cause is unknown to the experts, the risk increases with age. The prostate serves a number of purposes. These include releasing PSA, a protein that assists semen in maintaining its liquid state, generating fluid that provides nourishment, transports sperm, and assists with urine control.(Olarewaju et al., 2020a). According to the American Cancer Society (ACS), there are approximately 34,130 prostate fatalities and 248,530 new cases of adenocarcinoma of the prostate in 2021. Cancer of the prostate is diagnosed in approximately 1 in 8 men at some point in their lives. However, only one in 41 will pass away as a result. This is due to early-stage cancer therapies that are effective, and the tendency of later-stage cancer to grow slowly. The majority of cancer of the prostate cases can be detected by doctors through regular examinations before their proliferation(Fathy et al., 2016).

Adenocarcinoma of the prostate is more common in older men worldwide than other cancers. The adenocarcinoma of the prostate is most common in older men in Kenya, where it accounts for 14.9% of all new cancer cases (Mbugua et al., 2020). Usually diagnosed after the age of 65, less developed regions report an increased prevalence and mortality rate for the disease (Bergengren et al., 2019a). Environmental factors are believed to be a significant cause of adenocarcinoma of the prostate, even though autopsy incidence rates for cancer of the prostate are the same across all racial groups. According to recent literature, despite having been diagnosed at similar ages, Kenyan men with prostate cancer present with tumors that are more severe and advanced than those from other nations(Cooperberg & Carroll, 2015).

Prostate cancer screening involves extremely personalized, collaborative decision-making among individuals with the disease and their caregivers. The age and stage at diagnosis decreased as a result of PSA screening. However, because of the small unconditional effect in comparison to the number of people who need to be screened and treated to cure one person, widespread screening is not advised(Bergengren et al., 2019b). When patients present with symptoms of the lower urinary tract, medical professionals should be highly suspicious and perform prostate screenings(Olarewaju et al., 2020b).

An informed collaborative decision-making process that weighs the benefits of screening is necessary for PSA-based screening. Men who are considering screening for cancer of the prostate should be aware of the risks involved, including incorrect diagnosis, mistreatment, and adverse effects from biopsies(Makau-Barasa et al., 2022). In Kenya, accredited nonprofit organizations and healthcare facilities with a level of 4 or higher should offer PSA testing. Histopathologic confirmation of adenocarcinoma in prostate biopsy cores or surgical

specimens is necessary for a conclusive diagnosis of adenocarcinoma of the prostate, with a minimum of 10 core samples needed(Mureithi et al., 2022).

Despite screening being accessible, there needs to be a higher uptake among men in rural Kiambu, Kenya. Researchers want to know how female partner-specific brochures affect men aged 40 to 69 years in rural Kiambu, Kenya, who want to get their prostates checked. In addition to determining the primary barriers and facilitators to prostate carcinoma screening, the research aims to determine the impact of brochure message frames on the intention to screen for the illness. Finding out how culture affects men in rural Kiambu, Kenya, between the ages of 40 and 69, their intention to screen for adenocarcinoma of the prostate, and their opinion of the usefulness of partner-specific pamphlets for women, is the study's secondary objective. By identifying these factors, this investigation aimed to increase the uptake of screening for adenocarcinoma of the prostate among men in rural Kiambu, Kenya.

2.2.1 Prostate Cancer Signs and Symptoms

Research has identified the existence and expertise of cancers with prostate cancer-related signs and symptoms as well as healthcare providers' recommendations as the main drivers of screening for adenocarcinoma of the prostate uptake. They found that signs and symptoms were the main motivators for taking advantage of screening and medical professional recommendations in their study of the incidence of adenocarcinoma of the prostate among Chinese men (So et al., 2014a). An investigation of African American men who underwent prostate cancer screening at the recommendation of their physician revealed similar outcomes (Ogunsanya, Brown, Odedina, Barner, et al., 2017a). According to Conde et al. (2011), prostate cancer detection among Filipino men was significantly aided by the presentation of urinary tract symptoms as well as recommendations from medical

professionals. Men are seeking prostate cancer detection services because UTIs and cancers of the prostate have been related in another Ugandan study (Okuku et al., 2016). The presentation of signs and a healthcare professional's recommendation have both been identified as important screening facilitators according to studies conducted among Nigerian men (Asare & Ackumey, 2021a) the urge to seek medical attention is sparked by the symptoms and indications of adenocarcinoma of the prostate, which encourages the use of adenocarcinoma of the prostate screening.

2.2.2 Prostate Cancer Outcome

Adenocarcinoma of the prostate is a major cause of mortality and morbidity that affects men at an increasing rate in nations that are both developed and developing. Prostate cancer outcomes have been linked to inadequate diagnosis, confirmation, and treatment (Mbugua, Oluchina, et al., 2021). One of the major consequences of adenocarcinoma of the prostate is an increase in other comorbidities along with mortality, and the loss of testicles reduces male fertility. Family members' or friends' firsthand knowledge of the detrimental effects of the disease may have played a major role in the prompt identification of cancer of the prostate. According to Asare and Ackumey (2021b), men who had witnessed the devastating effects of cancer in friends or family were urged to get screened. More people may be aware of diseases and perceive risks, which may be the cause. In a similar vein, it has been noted that close companionship and assistance help promote early detection of adenocarcinoma of the prostate.

2.3: The effects of female partner-led initiative on method on intention to screen for cancer of the prostate

According to previous studies, there is enough evidence indicating women's role in family health, especially in men's health(Birkeland et al., 2024a; Martin et al., 2024). In their investigation, Allen et al. (2018) acknowledged that women perform significantly better than men in areas related to cancer, including the early detection of cancer symptoms, including prostate cancer. Research on breast and cervical cancer among women has indicated that their knowledge of this form of cancer has enabled them to control their health(Allen et al., 2018). Additionally, women have a keen interest in their spouses' well-being, which enables them to make specific observations that men do not. (Meiser et al., 2007). There is growing evidence that women play a role in treatment decisions for their spouses with prostate cancer using partner-specific leaflets(Meiser et al., 2007).

Though numerous research investigations have been conducted in the field of cancer, few have looked at how women might help screen men for cancer of the prostate; that being said, little is known about how women might contribute to this process. The aim of raising women's awareness of cancer of the prostate as a public health strategy to boost men's adoption of adenocarcinoma of the prostate screenings is to enhance the use of partner-specific pamphlets to boost the mapping of evidence (Allen et al., 2018). Investigations have demonstrated the important role spouses play in men's health and wellbeing, particularly when it comes to making healthcare decisions (Mbugua, Karanja, et al., 2021a). It has been proposed that the use of partner-specific brochures can increase the detection of prostate cancer because they provide women with plans to encourage their partners to participate in informed decision-making with healthcare professionals regarding adenocarcinoma of the

prostate screening (Allen et al., 2018). The adoption of a screening program determines its effectiveness. There is no set standard for increasing cancer uptake during prostate screening. Nevertheless, many interventions have been embraced, including the use of female partner-specific brochures, patient-oriented physical reminders, group education letters intended to remind patients, and small media, such as posters and flyers(Canady, 2017).

Health messages have been framed in two significant ways: gain- and loss-framed. Gained framed messages illustrate the benefits of engaging in healthy behaviors to avoid unhealthy conditions or to prevent disease. Loss-framed messages place greater emphasis on the negative effects of engaging in inappropriate conduct or failing to do so. Prospect theory predicts the type of message framing that can be used by researchers (Watanabe et al., 2013). According to this theory, individuals are likely to take action when threatened by unsafe actions or the consequences of a prevailing illness. Prospect theory states that people are inclined to take chances, but the main purpose of an encouraging message is to encourage people to pursue opportunities that will benefit them. According to this theory, lose-framed communications have a higher potential to motivate prostate screening than gain-framed ones (Ainiwaer et al., 2021).

The context provided by the theory of prospects helps understand the psychological mechanisms underlying how persuasive messages are framed to influence healthy behaviors. The theory of prospects was proposed to comprehend decision-making in uncertain situations. Persuasive messages that use the concept of loss persuade listeners to consider the negative effects of their decisions. According to the theory of prospects, people are consequently more likely to take part in risky behavior because the corresponding subjective unfavorable motivates a form of loss aversion(Salovey et al., 2014). Let us assume that there

is a chance to stop the loss. People may feel less threatened after hearing gain-framed messages, which lowers their propensity to engage in actions with uncertain outcomes. People may feel reasonably satisfied with the results of their choice after analyzing the gain-framed message, which causes them to become risk-averse and avoid actions that could jeopardize their gain. When promoting prevention behaviors, gain-framed messages tend to be more convincing, whereas loss-framed messages are more effective when promoting early identification (screening) actions (Salovey et al., 2014).

It is effective to use message framing to change health-related behaviors. Health information tries to alter people's attitudes, desires, or behaviors toward a particular health topic by highlighting the expected benefits of engaging with particular health behaviors or highlighting the possible loss of engaging in certain well-being behaviors that do not occur. According to the theory of reasoned action, attitude plays a momentous role in the direct prediction of behavior. Furthermore, the gold standard for determining whether health-related messaging are effective in persuading men to get screened for cancer of the prostate is attitudes, intent, and behavior (Mckinley et al., 2017). While there have been numerous studies published over the past ten years regarding the effectiveness of message framing for health awareness, it is unclear how much of what has been discovered has actually been used to spread the word about prostate cancer detection. Numerous factors, such as provider and patient knowledge, attitudes, beliefs, patient socioeconomic circumstances, and the medical system (accessibility, cost, and lack of follow-up treatment for screening tests), impede cancer screening. Effective communication is essential when disseminating information about cancer prevention and adenocarcinoma of the prostate screening (Mckinley et al., 2017). (Kinyao & Kishoyian (2018) looked into adult men's attitudes toward

adenocarcinoma of the prostate screening as well as their perceptions of the risks involved. About half of those who participated did not intend to screen regularly, according to their results.

The researcher speculates that the low desire among the employees under study may have resulted from their ignorance of the seriousness of cancer of the prostate and their perception of barriers like cost and screening anxiety. As a result, more effort is needed to reduce screening obstacles and increase public awareness of the gravity of cancer of the prostate. Persuasion from close social networks, exposure to unique cancer experiences, and proactive encouragement to screen health care professionals all contributed to men's consent and readiness to undergo the adenocarcinoma of the prostate screening. Additionally, men's conviction that early identification could improve their chances of survival drove them to commit to testing for cancer (James et al., 2017a). Concerns about cancer of the prostate and the start of symptoms were the most common causes for screening, and neither of these factors had a good outcome (Salem et al., 2022). These results were in line with a research by Mbugua, Karanja, et al., 2021b, which looked at the factors that support and obstruct adenocarcinoma of the prostate screening among men in a rural Kenyan group between the ages of 40 and 69. The vast majority of those surveyed said that their primary motivations for screening for cancer of the prostate were their experiences with symptoms and concerns about cancer of the prostate.

Based on their overall affiliation score, both before and right after the intervention, over two-thirds of the study's employees were unwilling to have prostate cancer detection tests performed (Salem et al., 2022). A month following the program's launch, slightly less than two-thirds said they had committed heavily (Salem et al., 2022). These findings are consistent

with the study carried out by Zaret al. (2016), which investigated the impact of education grounded in the Health Belief Model (HBM) on individuals' knowledge and screening practices for prostate cancer. Their results showed that one month and three months after the intervention, the rate of cancer of the prostate examination involvement among the participants in the intervention group increased from 7.5% to 24% and 43.3%, respectively. Their findings demonstrated a momentous improvement in the employees' overall devotion score prior to, during, and one month following the program action (Salem et al., 2022). These outcomes are in line with those of (Jeihooni et al., 2019a), who looked at how a PRECEDE model-based educational initiative affected a sample of Iranian men's prostate cancer screening rates. They discovered that the experimental group's cancer of the prostate screening behavior score considerably increased over pre-intervention levels six months following the intervention. This proves the importance of screening for prostate cancer and its impact on the employees being studied, as well as the effectiveness of the educational program.

Depending on the level of awareness and desire to screen, a number of studies (Çapik & Gözüm, 2018; Drake et al., 2020; Ukoli et al., 2013) have shown the effectiveness of different prostate cancer prevention educational materials. Using a pretest/posttest design, (Capanna et al., 2015) assessed the impact of a theory-based health awareness intervention on 454 men in Western Jamaica who were 40 years of age or older, using various clinics and hospitals in the area, and who weren't candidates for cancer detection screening. Men were questioned about adenocarcinoma of the prostate and whether or not they planned to get screened. The basis for the educational component was provided by the Transtheoretical Model and the HBM constructs. The educational session was conducted by a member of the research's staff using a PowerPoint presentation that was either viewed on a computer or printed on slides.

After completing the pre-test, individuals watched a prostate- cancer health education interference and immediately completed the post-test questionnaire. The findings demonstrated a substantial rise in PC knowledge and testing intention between the pre- and post-tests (Capanna et al., 2015).

A related research investigation (Ukoli et al., 2013) evaluated the effects of tailored PC education on acceptance of screenings as well as understanding among 539 economically disadvantaged African American men (AA) who are 42 years of age or older and have not examined for PC in the preceding 12 months. The study used a single-group, non-randomized education intervention research design. The findings demonstrated that a 15-minute PC education action, which included tailored interaction and a PC brochure, enhanced screening intention and improved knowledge of cancer of the prostate. Men without a high school diploma, on the other hand, had the lowest post-intervention PC knowledge and testing rate, suggesting that more education sessions might be necessary. According to Ukoli et al. (2013), a yearly free prostate exam can help sustain a positive trend.

When compared to the placebo group, the treatment group's desire to screen variables enhanced substantially one month after the educational program was applied, according to the study's findings regarding the impact of the program on prostate cancer detection and desire to screen (Saleh, Petro-Nustas, et al., 2020). According to their investigation's findings, PC educational programs may have an impact on PCS intention. These findings are in line with those of earlier research (Odedina et al., 2014; Keane, 2015; Ivlev et al., 2018a; Ogunsanya, Brown, Odedina, Barner, et al., 2017b; Gökce et al., 2017).

This theory is reinforced by evidence from previous investigations (Capanna et al., 2015; Morrison et al., 2017), which showed a statistically significant rise in screening desire following a program of instruction. Their study looked at the effects of a training program

based on the health belief model on expertise, behaviors, and motives related to cancer of the prostate prevention (Khalil et al., 2024a). The majority of partakers (78.2%) stated that they had never screened for cancer of the prostate before and that they had no plans to do so (Khalil et al., 2024a).

The incorporation of HBM constructs was helpful to forecast the desire to screen because individuals are more likely to act to avoid, minimize, control, or treat a health issue if they think doing so will boost their motivation and be beneficial. According to this supposition, it might be beneficial to present educational and/or preventive measures in terms of the benefits and motivations that will ensue (Rock et al., 2020). There are misconceptions that affect men's decisions to take part in cancer of the prostate screening and prevention (Mason et al., 2022). The results of the investigation demonstrated improvements in the average score for each group's all around health belief model over all assessed assessment periods for all subscales. Rezaei et al. (2020a) found that there was a substantial rise in the mean behavioral regulation score of the treatment group. Men are more likely to intend to engage in examination behaviors when they have more awareness about adenocarcinoma of the prostate screening, when they have positive attitudes about the fact that cancers can be controlled with early detection, when they have more confidence in their capacity to carry out these types of actions, and when they believe they have control over environmental factors. Improved habits of seeking medical care are assumed to result from all of these factors (Rezaei et al., 2020b). Charvin et al. (2020) found that there was a substantial rise in the mean behavioral regulation score of those in the intervention group. Males' intentions to participate in screening behaviors seem to rise with increased awareness of cancer of the prostate and screening, favorable attitudes toward the fact that cancers can be controlled with early detection, self-assurance in their capacity to carry out these behaviors, and conviction

in their capacity to influence environmental variables. These factors are thought to lead to improved health-seeking behaviors(Martin et al., 2018). TPB holds that an action follows an intention and that there is a strong correlation between an action's intention and its execution. In their study, individuals with the strongest intentions carried out the behavior (screening for cancer), suggesting that the most likely subjects are also the most likely to perform a behavior (Auvinen et al., 2024).

TPB-based education enhances screening-related behaviors for prostate cancer, such as testing, counseling, and examinations, as well as diagnostic procedures for early prostate cancer identification (e.g., blood and physical examinations)(Andriole et al., 2019). Higher educated people are generally more informed and take into account a wider range of risk factors, according to multiple studies (Bokhorst et al., 2014; Martin et al., 2024; Roobol et al., 2019). More knowledgeable people react more strongly to disclosures of personal cancer risk and to changes in risk by supporting cancer detection as a means of avoiding it. Consequently, interventional programs to enhance cancer screening can employ behavioral change theories (Harding et al., 2024).

Just 8.1% of men said in another Saudi Arabian investigation that they planned to get screened for cancer of the prostate (Elmaghraby et al., 2023). Three factors drove their desire to be screened: adherence to Saudi Ministry of Health proposals (52.9%), early cancer detection (53.8%), and family history of cancer (38.5%) (Elmaghraby et al., 2023). Reasons given by people who did not want to be examined for cancer of the prostate included not having cancer symptoms (77.5%), being too young (31.5%), not having enough time (23%), being reluctant of the findings of the test (18.3%), and being afraid of the screening procedure (15.5%). The study's conclusions showed the standing of involving women in encouraging

men to get screenings for adenocarcinoma of the prostate and to do so(Elmaghraby et al., 2023).

Similarly, Studies have reported a considerably low intention to use CPS among men. For instance, according to a Jordanian study, approximately 28% of men had the intention to participate in CPS (Abuadas et al., 2017). Similarly, according to (Arafa et al., 2012) only 8% to 30% of men in the Kingdom of Saudi Arabia, Jordan, and Egypt had an intention for CPS. In a study conducted among Haitian American men, approximately 44% were reported to have the intention to participate in CPS (Kleier, 2010). Based on a Ugandan study, the majority of men had a considerably high intention (94%) to participate in PSA screening (Nakandi et al., 2020). A Kenyan study also found that approximately 43.6% of men had the intention to participate in CPS. However, there are barriers such as cultural factors, beliefs, and knowledge that hinder the intention of men to participate in CPS (Mutua et al., 2017b). Additionally, based on an Oman study, the intention to use CPS was very low, which was attributed to factors such as inadequate knowledge about CP. Available evidence shows that the intention for CPS is very low among men in the Middle East due to high misconceptions about cancer, as well as low uptake of screening programs due to social and health beliefs (Brown et al., 2012). No study in Kenya has embraced the use of loss-framed or gained-framed strategies to promote adenocarcinoma of the prostate screening. As a result, this study aimed to utilize these two techniques to evaluate their effectiveness towards the uptake of adenocarcinoma of the prostate screening.

2.4 Effects of message frame

One of the biggest healthiness problems in nations that are developing is prostate cancer. It has a severe financial impact on patients and caregivers and lowers the standard of living for

both. This disease is the second leading reason of cancer-related fatalities in men and is the second-most prevalent kind of cancer globally. Due to its high incidence, adenocarcinoma of the prostate is a serious concern for middle-aged and older adults (Jeihooni et al., 2019a). There are no symptoms when cancer of the prostate is still in its early stages. Typically, the condition has already progressed because of the time the symptoms manifest. Thus, to promote early disease detection in the male population, knowledge of the condition and its screening remain crucial(Persaud et al., 2021). Research has indicated that insufficient understanding of the illness and its diagnostic procedures poses an obstacle to the successful preclusion and management of cancer(Mbugua, Karanja, et al., 2021b). Men's active engagement and commitment to screening can be encouraged by providing information about cancer of the prostate and screening through educational programs in various community settings(Walsh-Childers et al., 2018). Gain-framed brochures have been used to encourage proactive behavior by focusing on the benefits of taking action. For instance, messages such as "Early detection of prostate cancer can save your life" are likely to prompt men to take necessary steps toward screening. When a female partner is actively involved in the dissemination of the brochure, their encouragement can further influence the male partner to act on the information provided(Jeihooni et al., 2019b).

Gain-framed messaging emphasizes the benefits of taking particular action. With regard to health communication, particularly in a gain-framed brochure method aimed at increasing knowledge and awareness of adenocarcinoma of the prostate, there are several potential effects, especially when female partners are involved. Female partners can play a crucial role in inspiring men to seek information and undergo screening for cancer of the prostate (Zare et al., 2016). Gain-framed brochures that highlight the benefits of early detection, such as increased survival rates and better health outcomes, can be particularly effective when

communicated by a partner. Men may be more receptive to the message when it comes from someone they care about and who is concerned about their well-being(Grossman et al., 2018). Women often play an active role in family health decisions. Their involvement, combined with the positive framing of the information, can lead to a higher motivation for men to undergo screening(Zare et al., 2016). Additionally, gain-framed messages are generally less likely to induce fear than loss-framed messages (which focus on the negative consequences of inaction). This can reduce resistance to messages, making individuals more open to receiving information. Such brochures can reduce anxiety associated with prostate cancer discussions by focusing on what can be gained through awareness and early detection, such brochures can reduce the anxiety associated with prostate cancer discussions(Fenton et al., 2018).

According to studies, ignorance of the condition and screening procedures is a significant obstacle to preventing and controlling cancer (Mbugua, Karanja, et al., 2021a; Persaud et al., 2021). By educating men about cancer of the prostate and screening through educational programs offered throughout different community settings, it is possible to encourage men's active involvement and dedication to screening (Walsh-Childers et al., 2018). The study's conclusions regarding the employees' general degree of knowledge revealed that during the course of the investigation, their total score for knowledge considerably increased (Salem et al., 2022).

Most study participants received low scores regarding cancer of the prostate and the pre-program intervention's screening for it. After the program was implemented, the majority of the staff members who partook in the study had an advanced level of knowledge, and after one month, more than two-thirds of them still did (Salem et al., 2022). These results aligned with those reported by Saleh, Petro-Nustas, et al. (2020). The impact of actions aimed at

preventing cancer of the prostate on men's intention and awareness of leading healthy lives in Jordan was assessed by the researchers. Between the pre- and post-program periods, there was a substantial increase in the overall knowledge score ($p<0.001$), with the mean knowledge scores increasing from 5.08±2.99 in the pre-program to 8.7±2.422 afterwards.

This outcome also aligns with investigation by Olaoye et al. (2022) in Sokoto, Nigeria, which evaluated men's awareness of cancer of the prostate and screening procedures, and by Molazem et al. (2018) in Shiraz community areas, which assessed the effects of an educational program for adenocarcinoma of the prostate mitigation in men over 50 and prostate-specific antigen (PSA) testing. According to the results of the second study, 64% of participants knew too little about cancer of the prostate and screening. This may be due to the fact that only 75% of the study's employees held a secondary degree, or it could be due to the lack of well-being education programs regarding cancer of the prostate and screening for it. According to Abuadas et al. (2019), testing for prostate cancer may enhance the rate of survival, lower the likelihood of the disease's death, and save money on healthcare by enabling more effective treatment and early disease detection. It is estimated that over 69% of adenocarcinoma of the prostate deaths can be prevented in the first five years with appropriate screening. Therefore, it is crucial to improve men's commitment to cancer of the prostate screening tests by providing them with educational programs that expand their understanding of adenocarcinoma of the prostate screening (Abuadas et al., 2019).

Less than 75% of employees reported that they had not previously had adenocarcinoma of the prostate screening tests, had not had physical examinations, or had not intended to implement a regular adenocarcinoma of the prostate screening program prior to its implementation, according to Salem et al.'s research (2022). The researcher claimed that these results explained why the participants' overall knowledge scores showed that they were

not aware of the screening processes or the appropriate times to carry them out. Because there are no scheduled times for men to be screened for cancer of the prostate, unlike other cancers like breast and cervical cancer, there is very low testing uptake. These results were in line with those of (Nakwafila, 2017), who looked into men's attitudes and knowledge about adenocarcinoma of the prostate screening in the Oshana region of Namibia. According to the study, 41% of the subjects had had their prostates screened for cancer. In addition, only 13% of those who took part in the study (Gift et al., 2020a) evaluated knowledge, practice, and perceptions toward adenocarcinoma of the prostate detection among male patients at Kitwe Teaching Hospital in Zambia who were 40 years of age or older. According to the investigator, the overall knowledge assessment of the participants suggests that they were not conscious of the processes for screening and when to perform them, which could account for these results. Unlike other cancers like breast and cancer of the cervical cavity, prostate cancer does not have screening schedules, which is one of the reasons for the incredibly low examination uptake.

Men's willingness to take part in cancer of the prostate screening is significantly influenced by their knowledge of PC and the benefits of early detection. Nonetheless, some men declined or put off getting screened for prostate cancer for an assortment of reasons. The two primary causes are not knowing where and when to go for a cancer of the prostate screening, as well as being afraid of getting a PC diagnosis (Shungu & Sterba, 2021). In addition, there are financial constraints, a low sense of personal vulnerability, and cultural norms surrounding masculinity that impede prostate cancer screening. Thus, when men are counseled and educated on cancer of the prostate screening, cultural considerations must be made. Furthermore, it is recommended that male clinicians and nurses participate in

educational sessions aimed at providing culturally acceptable screening services, thereby increasing the level of commitment from men(James et al., 2017b).

The association between the research participants' knowledge and their pledge to performing adenocarcinoma of the prostate screening tests both before and after educational initiatives. The results of their investigation showed that there were statistically significant positive associations between the employees' overall knowledge and their dedication to cancer of the prostate screening tests prior to, during, and one month after the training program was put into place. ($P<0.001$)(Salem and others, 2022). The results of a research investigation carried out in Brazil to assess the connection between cancer aggressive behavior, adenocarcinoma of the prostate detection compliance, and understanding were confirmed by Tobias-Machado et al. (2013). They found that compliance with screenings and participant literacy had statistically significant positive associations. This might be because staff members are more committed to screening for adenocarcinoma of the prostate now that they are aware of the seriousness and risks associated with the condition. This may suggest that men who are unaware of the benefits of adenocarcinoma of the prostate detection have a higher chance of receiving a diagnosis of aggressive and progressing prostate cancer since they are less inclined to follow screening instructions and schedule follow-up appointments (Rezaei et al., 2020b).

Additionally, this result is in line with the findings of a research investigation conducted in Tehran by Rezaei et al. (2020a) to define the effect of training courses based on the theory of planned behavior on the detection of adenocarcinoma of the prostate. They found that that respondents understanding of and dedication to testing for adenocarcinoma of the prostate were statistically significantly positively correlated prior to and two months after the course of study. This may be as a result of research that respondents raised commitment to screening

as a result of their improved knowledge of the risks and seriousness of cancer of the prostate. This could show that insufficient knowledge about the condition and screening methods has been connected to a lack of commitment to undergoing adenocarcinoma of the prostate screenings. As a result, there's an increased chance of prostate cancer-related death, morbidity, and missed detection.

(Çapik & Gözüm, 2018) carried out a pre-test and post-test longitudinal investigation to investigate how web-assisted education as well as reminders affected 1,744 Turkish men aged 40 and above's comprehension and early identification behaviors of PCS. The people who participated received reminders via e-mail, messages on texts, desk calendars, booklets, and cell phones for a period of six months, in addition to the web-assisted education and consultation. Changes in the patients' screening practices and degree of understanding were assessed three and six months following the treatment sessions. Over the duration of the study, the percentage of participants who had their prostates examined rose from 9.3% to 19.1%. The research study discovered that web-assisted educational institutions and reminders positively changed the people's views of their vulnerability and barriers. Additionally, more people are taking part in early detection (Çapik & Gözüm, 2018).

The results of their investigation showed that the degree of knowledge among Jordanian men in Amman significantly increased one month after the introduction of the cancer of the prostate awareness campaign that used pamphlets (Salem et al., 2022). This outcome is in line with the findings of additional investigations that looked at the effectiveness of instructional strategies in raising knowledge. According to a controlled trial conducted by Wilt et al. (2021), men who came across an educational pamphlet knew more than men in the placebo group. The efficiency of various educational strategies in expanding knowledge

has been compared in other studies. (Gattellari & Ward, 2017) used booklets, films, or pamphlets to educate 421 men. They reached out for a follow-up a week later. While understanding increased significantly as a result of all interventions, men who were given the booklet scored significantly more highly on the post-test than those who only viewed the video or read the booklet ($p < 0.001$). According to (Partin et al., 2016), a booklet and a video were equally effective.

Only 1.3% of participants expressed their intention to undergo screening, despite being an essential preventive measure against prostate cancer(Wachira, Meng'anyi, & Ruth, 2018). This suggests that even with widespread knowledge of prostate cancer, very little screening is being performed. This remarkably low level may be clarified by the fact that men from lower socioeconomic backgrounds predominate in the study area. According to other studies, black men and underprivileged groups typically report having lower intentions to undergo screening for adenocarcinoma of the prostate (Carrasco-Garrido et al., 2014; Kangmennaang et al., 2016)

The low intention to use PCs may have resulted from respondents' ignorance of the screening services' availability, as 60% did not know that prostate cancer screening services were available. Similar findings were noted in Spain, where just 10% of participants stated they planned to take a PSA test, and the vast majority of those who were not screened claimed there were no screening resources accessible and that the tests were not needed (Ekwan et al., 2023). Similar results were observed in research involving African men in Kenya, Nigeria, and Uganda, where the intention to be screened was 4.1%, 4.5%, and 10%, respectively(F. O. et al., 2023; Mwebembezi et al., 2023a; Okyere et al., 2023a). This is due to research showing a higher risk of cancer-related death in patients who present to the

hospital in the latter stages of the illness. Even when there are no symptoms, men still need to be informed about the importance of regular examinations.

When (Kassianos et al., 2016) contrasted a traditional pamphlet with an illustrated pamphlet, they found that, while both raised awareness, neither improved the actual use of PSA testing. Similarly, after respondents were given an educational intervention, other researchers found that respondents had high knowledge scores regarding PC and PCS(Drake et al., 2020; Ivlev et al., 2018b). Numerous factors could be responsible for the notable knowledge-boosting impact of prostate cancer education programsA systematic education was given to those who participated to increase their knowledge through a combination of spoken instruction, booklets, and brochures.

The curriculum was standardized and tailored to each student's needs in terms of age, sex, socioeconomic status, and Jordanian culture. Individuals' capacity to learn is significantly impacted by the previously mentioned factors(Drake et al., 2020). Using written material and candid conversations in the prostate cancer awareness campaign may also have contributed to the intervention's success. As per Gökce et al. (2017), these techniques are essential for carrying out education for patients sessions. There hasn't been any investigation done on how prostate cancer prevention education initiatives affect Kenyan men's level of consciousness and desire to screen. The purpose of the investigation was to assess men in rural Kiambu, Kenya, aged 40–69 years about their knowledge and awareness of cancer of the prostate. The male partners led the gain-framed and loss-framed brochure methods.

2.5 Loss message frame

A study conducted in Serbia (Panajotović et al., 2022) and Ghana (Wiafe et al., 2023) agree that, despite the contributions females make to men's well-being and the importance of

educating women, a few investigations have looked at women's perceptions and attitudes toward PCa. As mentioned earlier (Oliver et al., 2018a), adequate responses were obtained for the perspective and faith items (Usman et al., 2020). The following statements were positively expressed by approximately 72.90%, 72.20%, and 35.70% of the 2000 study participants who answered the questionnaire: "A woman can recommend to men to screen for adenocarcinoma of the prostate," " adenocarcinoma of the prostate examination must be free for every man," and "men diagnosed with malignancy of the prostate must not have sex with their wives." 58.95%, 46.30%, and 47.70% of the respondents, respectively, positively answered the belief items that stated " adenocarcinoma of the prostate is a family disease," "nothing can be done to save a person with adenocarcinoma of the prostate ," and " adenocarcinoma of the prostate is a spiritual disease" (Oliver et al., 2018b).

Regarding PCa, more than half and roughly a quarter of the participants held unfavorable opinions ($p < 0.001$)(Wiafe et al., 2024). This suggests that participants' beliefs were lower than their attitudes and that women's beliefs should be the focus of educational interventions. This observation supports the notion that mosques and churches can serve as educational facilities. In contrast to Christians, we found that Muslims had higher belief outcomes; however, the trend of knowledge scores persisted in attitudinal scores. All other parameters showed favorable responses ranging from 35.70 to 47.70%, with one notable exception of three statements: " adenocarcinoma of the prostate is a spiritual disease," "a woman may suggest to men to screen for adenocarcinoma of the prostate," and " adenocarcinoma of the prostate screening should be free for every man." These statements received positive attitudinal or belief opinions of 72.90%, 72.20%, and 58.95%, among others. Having sex with a spouse of a man diagnosed with adenocarcinoma of the prostate is totally acceptable, and this should be emphasized in the design of an educational program, among other benefits.

According to Barber et al. (2018), women ought to become aware that, like other cancers, adenocarcinoma of the prostate is inherited and may run in families. With the exception of the belief assessment, where Muslims slightly outperformed Christians, we can state with confidence that Christians outperformed Muslims in knowledge and attitudes.

Female partners often play a significant role in influencing health behaviors, especially for conditions such as prostate cancer, which men may be less likely to address proactively. As partners, women may encourage their male counterparts to engage in preventive health behaviors, including prostate cancer screening(Ikuerowo et al., 2019). The distinction between men's individual information processing and health message processing styles determines the efficacy of gain-framed versus loss-framed brochures. Some people might be more driven by the prospect of profit (gain frame), whereas other individuals could be more inspired by the fear of failure (loss frame).(Ntekim and others, 2023). Female partners can enhance the impact of these brochures by providing emotional support and encouraging men to prioritize their health, thus potentially increasing the likelihood of screening regardless of framing(Saifuddin et al., 2017). Men who receive gain-framed brochures from their female partners may feel more positively reinforced to undergo screening. Emphasis on these benefits could lead to a more favorable perception of screening. Gain-framed messages might lead to an increased willingness to undergo screening, as men perceive the act as something that enhances their health and longevity(Saifuddin et al., 2017).

Their groundbreaking research, the first of its kind, looked at how an educational program based on the Health Belief Model, or HBM, affected the incidence of adenocarcinoma of the prostate screening in Egypt (Khalil et al., 2024b). The program's effectiveness was demonstrated by notable improvements in participants' attitudes, perceptions, and screening and prevention practices for prostate cancer. These positive results persisted for three months

following the program, suggesting that these interventions may have long-term advantages. In addition, after the program ended, participants' intentions for screening improved(Khalil et al., 2024b). Adults reported perceived PC screening dimensions/aspects based on the HBM more frequently than older adults. Compared with their peers, those with greater yearly incomes and educational attainment showed better attitudes and a favorable opinion of their involvement in preventive measures(Khalil et al., 2024b).

In a similar vein, an Italian study conducted by Maladze et al. (2023a) discovered that most respondents had a more positive opinion of PC screening and administration than those who had not previously heard about it from a physician. According to a recent comprehensive review, men in sub-Saharan Africa are largely prevented from getting adenocarcinoma of the prostate screenings due to ignorance. A number of factors, including adverse views, beliefs, as well as perceptions, can prevent prostate cancer from being tested for and detected (Mirone et al., 2017).

Their research indicates that low income, inadequate PC training programs, low education levels of the participants—more than half of whom dropped out of high school—and the growing focus of health government officials and healthcare providers on treatment rather than avoidance may have contributed to the subjects' inadequate knowledge scores and unfavorable attitudes before the intervention (Baratedi et al., 2020). In the dearth of mass media orientation initiatives that emphasize PC screening, adults, especially older adults, may be more vulnerable to an apparent lack of understanding regarding the reputation of PC examination behaviors and prevention measures (Mwebembezi et al., 2023b).

2.6 Cultural beliefs on prostate screening

Studies indicate that cultural beliefs around masculinity impact men's attitudes toward prostate cancer screening. In many cultures, men may feel that seeking help or undergoing medical screening is a sign of weakness, which is often stigmatized. (Gray et al., 2017). For instance, studies from African and Caribbean communities show that men may avoid screening because they perceive it as inconsistent with traditional masculine traits like strength and resilience stigma and privacy concerns (Eley et al., 2019). The nature of prostate cancer screening, which involves procedures like the digital rectal exam (DRE), can be uncomfortable for many men, leading to embarrassment or a fear of stigmatization. Research has shown that men from conservative or traditional backgrounds may avoid screening due to concerns about perceived invasiveness or fears of compromising privacy (Moqueet et al., 2024).

In societies where family dynamics and gender stereotypes play a major role in health decisions, the utilization of female partner-led gain-framed and loss-framed brochures as a means of influencing cultural beliefs regarding cancer screening for prostate cancer can have major consequences. Research have revealed that there is a generalized mistrust, fear, and unfavorable perception of medical professionals among Blacks and Latinos (Arnett et al., 2016; Bamgbade et al., 2020; Kulakci-Altintas et al., n.d.; Nanaw et al., 2024; Ogondi et al., 2018; Trinh et al., 2019). As a result, it is not surprising that minority populations have lower screening practices than Whites(Gray et al., 2017). According to Gray et al. (2017) and Stacey et al. (2017), 2024, individuals associated with minority groups are also more likely to seek informal well-being advice from friends, relatives, community centers, and churches. Additionally, they often experience discomfort when speaking with medical professionals who belong to different racial or ethnic groups. A sense of shame and fear that come with a PC diagnosis worsen the situation, making honest interaction with health care providers even

more difficult when a medical condition that can upset physiological (bowel, bladder, and sexual functions) that are included is involved (Naccarato et al., 2011).

Misinformation about prostate cancer and its screening process is common in some cultures. Misconceptions, such as the belief that screening itself can cause cancer or that prostate cancer is a result of certain lifestyle choices, can prevent men from participating in screening (Gibson et al., 2016). Literature reviews reveal that health education and awareness are crucial for dispelling myths and encouraging a more proactive approach to screening. In some cultural contexts, religious beliefs can influence men's attitudes toward prostate cancer screening. For example, fatalistic beliefs, such as viewing health outcomes as predetermined or viewing cancer as an "act of God," may discourage men from undergoing screening. Studies have highlighted that men who believe their health is in the hands of a higher power may be less likely to take preventive health measures, including prostate cancer screening(Rocque et al., 2014).

Myths, false beliefs, and misinformation may spread when patients are reluctant to discuss the causes, signs, and side effects of PC. Investigators have long emphasized the necessity of culturally aware and varied interventions to dispel these myths and remove underlying obstacles, which will ultimately encourage at-risk minority groups to seek health care(Arraras et al., 2016). A few research investigations have addressed the views of males or what Black and Latina women are aware of and believe about PC, despite the fact that many have looked at Black men's opinions regarding it. Previous research on African American men's health-seeking behaviors has highlighted the social influence of female partners (Eley et al., 2019). The importance of women as the "primary forces" in the family

and the potential for family involvement in health-related issues have also been highlighted by Latino addresses to medical care (Rocque et al., 2014).

Individuals from each of the four cohorts concurred that PC screening is important and has a preventive function based on their investigations (Vapiwala et al., 2021). Digital rectal exam (DRE) and prostate-specific antigen (PSA) were terms that Black men, Black women, and Latino men knew. However, men in both of the groups gave misleading information about computer screening. When the topic of screening tests was raised, Black men expressed skepticism towards PSA tests and expressed the opinion that they were untrustworthy, implying the possibility of false positives. In cultures where health decisions are often influenced by the desire to maintain family stability and fulfill traditional roles, gain-framed brochures can reinforce the belief that participating in screening is a proactive way to protect one's health for the benefit of the family. By emphasizing the benefits, such brochures may align with cultural values that prioritize health, longevity, and well-being, thereby encouraging men to view screening as a responsible and beneficial choice(Gibson et al., 2016).

During their investigation on the cultural and social significance of adenocarcinoma of the prostate detection, some patients who had not received a screening for the disease mentioned prejudice and sexism (Moura & Rabelo, 2019). It is reasonable to argue that misogyny results in male fatalities for a number of reasons, including a failure to prioritize men's health. Just as women, men also need to exercise caution. Thus, achieving gender equality is a means of burying the negligence and violence against women that men typically perpetrate. The interviewees' scant consideration of the importance of visiting a doctor when symptoms are not obvious for early detection and a better prognosis is justified by the fact that significant

symptoms of cancer are frequently subtle in the early stages(Freedman et al., 2015). Men find it difficult to access healthcare services. The Health Basic Unit is a place where women go; most staff members are women and wait times are lengthy(Freedman et al., 2015).

According to(Kreling et al., 2016), hegemonic masculinity can be exhibited through health-related beliefs and costumes, which include denial of weakness or vulnerability, emotional or physical control, a robust stance, aggressive behavior, and physical domain. However, from a relational viewpoint of gender, it can be understood as a symbolic space to structure the identity of being male, through temperaments to be obeyed by those who wish to be judged of their masculinity, as stated by (Sabatino et al., 2012) Prostate cancer prevention and masculinity were linked because it was established that stigmas and apprehension about performing a rectal examination are perceived as potential indicators of losing one's masculinity.

For cultural reasons, men are adamant about performing a rectal examination, also known as the prostate exam(Moqueet et al., 2024). Research indicates that male patients have expressed challenges in receiving diagnosis(Escoffery et al., 2014). This approach stems from the idea that a man's sexual sensitivity is influenced by his prostate. Impotence can even be caused by a brief change, which emphasizes the significance of early diagnosis and the requirement that all men over 45 have an annual preventive exam, regardless of the presence of symptoms(O'Brien et al., 2024). It is advised that men with a family history of adenocarcinoma of the prostate begin to undergo a preventive examination at age 40. Men further stated that their sexual performance was affected by the treatment. According to their research, respondents who discussed the topic formed the impression that, for the majority of them, sexuality was still taboo(Baron et al., 2010). They may have also been embarrassed

to discuss it with their doctors and were afraid to take the prescribed medication out of concern that it would change their sexual orientation.

2.7 knowledge, attitude, perception, and cultural beliefs on prostate cancer screening

2.7.1 Knowledge of Prostate Cancer Screening

According to Bugoye et al. (2019a), cancer of the prostate (PCa) is one of the most predominant cancers that affect men globally. Regular screening can greatly enhance treatment results and survival rates by detecting problems early. However, a number of factors, such as cultural customs and opinions, frequently influence people's intentions of undergoing prostate cancer detection programs (Basourakos et al., 2022). To effectively promote health and increase screening among a variety of populations, it is imperative to comprehend these cultural influences (Basourakos et al., 2022). According to studies, older men are more probable to have PC because some of them oppose early detection and are only vaguely aware of signs and symptoms (Maladze et al., 2023b). Age is the most common risk factor for PC, with males aged 65 and older having the highest incidences, despite the fact that the primary causes are unknown (Morlando et al., 2017a). Global PC prevalence and death rates raised to 1,414,259 instances and 375,304 fatalities in 2020 (Makungu & Mweya, 2023) from 1,276,106 incidences and 358,989 deaths in 2018. These numbers show that the rate of disease transmission is rising, necessitating the implementation of temporary measures.

Studies on cancer of the prostate have revealed that developed countries account for the largest proportion of affected men, with developing countries following (Alothman et al., 2022). This is because, in contrast to nations that are developing and underdeveloped, advanced countries have the means to conduct education initiatives and encourage men to get examined in their early forties (Alothman et al., 2022). For example, a study on males

over 40 years old conducted in Nigeria found that only 47.5% of respondents knew about adenocarcinoma of the prostate (Aluh et al., 2018), and an additional investigation of men over 40 years old conducted in Saudi Arabia found that only 10% of the 400 individuals who participated in regular prostate cancer assessment check-ups due to the lack of information about the illness (Musalli et al., 2021).

There are a lot of PC cases in South Africa, and the growth rate seems to be quickening. This might be the case because, in spite of their status as a minority, white men in South Africa are more likely than black men to undergo screening early, have better utilization of diagnostic facilities, and undergo prostate- specific antigen, or PSA, testing (Asare & Ackumey, 2021c). According to Shungu et al. (2022) the vast majority of Black men in South Africa have very little knowledge about PCs, and this illness is only detected when it has reached an aggressive and sophisticated stage. According to a South African study, 54.4% of participants said they had never heard of personal computers(Thembane & Dlamini, 2023). This presents a negative image of black men's computer literacy and suggests steps to raise it.

Cultural beliefs, ignorance, opinions about health, subpar surgical care, and the use of conventional therapies to treat uncommon medical conditions are among the primary causes (Jarb et al., 2022). These variables may be connected to both a low screening rate and a high incidence of prostate gland malignancy. Additionally, black men have a bad attitude regarding screening, which increases the risk of death and excruciating pain if the condition is detected too late (Gift et al., 2020a). According to Ugochukwu et al. (2019a), participants in a Nigerian study thought cancer of the prostate was unattainable because they associated it with having sexual relations. However, some researchers contend that, because PSA

testing may have detrimental effects on health, there is still debate surrounding its use for screening(Awosan et al., 2018; Gunda et al., 2018).

Providing men who are less aware of screening enough information would encourage them to register, which would improve their health(Adibe et al., 2017a). Men who get tested early may also be motivated to tell others about prostate cancer, even in remote, deep-country areas where few people have heard of the disease(Ngowi et al., 2024). In accordance to the literature, men's knowledge, beliefs, and screening practices with regard to cancer of the prostate have not been extensively studied in Kenya, especially in rural areas (Wachira, Meng'anyi, & Mbugua, 2018). According to their studies, men in Dar es Salaam were shockingly ignorant about cancer of the prostate and screening options (Bugoye et al., 2019b). Testing for prostate cancer services are rarely used in this population, and their use has been associated with low income, apathy, and low perceived danger of the disease (Bugoye et al., 2019b).

There is evidence of an intensification in cancer mortality and incidence in nations that are developing, where the majority of those diagnosed receive a Stage IV diagnosis (Onyeodi et al., 2022). This highlights the necessity of increasing awareness, enhancing education, and motivating these groups to take part in screening initiatives. Based on the incidence rates, Nigeria is one of the countries in Africa with the greatest rates of cancer of the prostate (Abiola et al., 2022). In Nigeria, routine cancer detection through prostate screening is uncommon, despite the rising incidence of the disease, and it is said that men lack sufficient knowledge about cancer of the prostate. Assessing the knowledge, use, and willingness to undergo cancer of the prostate screening is essential to boosting screening practices, early detection, and medical outcomes for in danger men in the community (Adedeji et al., 2021).

They assessed testing practices, attitudes, and understanding of at-risk men in Lagos, Nigeria, about cancer of the prostate. The results of the research indicate that most respondents were conscious of prostate cancer (Ifeoma Ofuebe et al., 2023). Even in Nigeria, where initiatives to increase consciousness and prevalence of screening are ongoing, it is evident that additional research needs to be done to guarantee that men are cognizant of adenocarcinoma of the prostate and undergo screening (Ariyo et al., 2024). Prostate cancer screening will continue to be influenced by variables such as financial constraints, accessibility to screening facilities, and individuals' knowledge of prostate cancer, among others.

There is proof that the high-risk population in Nigerian communities is becoming more cognizant of CaP, but many men end up presenting with advanced illness because of a variety of factors, including poverty, ignorance, a lack of programs for screening, a lack of healthcare literacy, a lack of diagnostic facilities, and the belief that symptoms of decreased urinary tract function are an expected consequence of aging (Fente et al., 2024).

In accordance with their study (Saka et al., 2024), 35.1% of those surveyed stated that family history was an independent risk factor, 62.4% of subjects had never heard of cancer of the prostate before, and only 12.2% had received information about it from a doctor. About 69% of respondents did not know the age at which cancer of the prostate develops; 81.2% did not know about PSA and DRE screening procedures beforehand; 51.8% adenocarcinoma of the prostate could be treated; 35.9% were unsure; and 12.2% said it could not. The majority of respondents (64.1%) knew little about PCs in general and the screening services available to them(Saka et al., 2024). According to their study(Olaoye et al., 2022), the majority of men (67.8%) had a positive attitude toward adults undergoing PC screening; 82.8% thought that seeing a doctor right away for urinary symptoms was helpful; 87.4% disagreed with the efficacy of PC treatment; approximately 67.8% disagreed with PC screening if an individual

was well and fit, and 60.8% said that they would only contemplate PC screening when they were ill or sick. Overall, 84.9 percent of participants had a positive opinion of PCs, which is likely to increase the number of people who get prostate cancer screenings (Olaoye et al., 2022). As per Benedict et al.'s (2023) research, 64.1% of those surveyed lacked adequate knowledge about personal computers. A total of 84.9 percent of the respondents had a positive opinion of PCs. Conversely, 87.4% of the participants expressed skepticism regarding the efficiency of PC therapy. The vast majority of those polled (96.7%) hadn't previously taken a PSA test, although 53.1% of them were willing to do so. There was an important positive association ($r = 0.280$, $p < 0.001$) between views and understanding about prostate cancer (Benedict et al., 2023).

The mean level of understanding of male University of Nigeria staff members regarding prostate tumors was found to be 71.2% in the research they conducted on understanding, mindsets, and perceptions of the disease. 57.8% of the patients who responded to the survey were aware of cancer of the prostate. The attitude score's average percentage (Adibe et al., 2017a). The majority of those polled ($n = 397$; 60.8%) thought that cancer of the prostate screening and treatment were beneficial. The average proportion perception score was 60.0%. The majority of those who responded ($n = 351$, 53.9%) had negative views about the detection and management of cancer of the prostate. The University of Nigeria's staff members are well-informed and optimistic about the outlook for prostate cancer (Adibe et al., 2017b). On the other hand, a significant portion of the workforce expressed negative attitudes and beliefs about cancer of the prostate screening and treatment, along with a lack of comprehension.

Individuals who use subpar screening procedures and have limited understanding of PCA may experience a diagnosis that is delayed (OKELLO & KATWE, 2024). For the program

of screenings to be successful, consumers have to be better informed about the illness, its symptoms, how it presents, and the available examination options. Reports of differing levels of understanding or awareness about danger indicators for PCA, screening, and treatment have come from the US, Europe, and other countries (Birkeland et al., 2024b). Low understanding or awareness of PCA is linked with a number of sociodemographic characteristics, including their age, level of education poor medical literacy, lack of insurance coverage, and low income (Khalil et al., 2024c). Regardless of the existence of PCA education and avoidance campaigns, testing services provided as normal treatment in tertiary health facilities, and other measures, the majority of cases in Tanzania still present late. In their Tanzanian investigation, 1263 men (20.4%) showed a high level of Pca proficiency overall (Ngowi et al., 2024). According to Ngowi et al. (2024), there was a substantial association between the likelihood of having a biopsy for prostate cancer screening and having insurance for health care, knowing at least one PCA associated risk aspect or symptom, and getting PCA information primarily from hospitals.

A research investigation evaluating insight and other obstacles to Pca screening among at-risk Tanzanian men living in the country's north found that only 1263 (20.4%) of these men showed a high level of awareness concerning Pca risk variables, symptoms, and screening. Hospitals provided only 10% of the PCA information; the majority of the info came from the media (Bugoye et al., 2019c). Less than half of the study's partakers believed they were at risk of developing Pca, and only 9.5% had ever had a Pca examinations. PCA screening was enhanced by age over 51, health coverage, high blood pressure, and awareness of PCA symptoms and risk factors (Bugoye et al., 2019c). Furthermore, compared to individuals who

were unaware of PCA screening, those who received information about it from hospital medical professionals were more likely to undergo screening.

There has been conjecture that the tardy diagnosis can be attributed to inadequate understanding and assumptions regarding cancer of the prostate as well as the existence of substitute treatments (Rao et al., 2023). It was also discovered that inadequate understanding of the illness was closely associated with older age, low educational attainment, and speaking a language other than English. Despite the fact that men in countries that are developing are becoming more aware of prostatic diseases, this increased knowledge has not resulted in more screening or earlier presentations (Rao et al., 2023).

It is unclear if a rise in the use of detection of prostate cancer services is related to real or imagined comprehension of the disease, but generally speaking, an improved mindset and behavior toward seeking medical care has been correlated with having an extensive knowledge of diseases (Parker et al., 2024a). Disparities in the affordability of adenocarcinoma of the prostate detection services, as well as negative views and beliefs regarding the disease, may impact cancers of the prostate cancer screening and treatment in nations that are developed as well as developing (Mumuni et al., 2023a).

In their investigation, The respondent's knowledge was rated on an 8-point scale, and the mean score was 2.72±1.83 (Morrison et al., 2017). This translated into a 34% knowledge incidence. 4.2 Of the participants, 4.2% indicated a high degree of expertise. The responders' lack of knowledge about adenocarcinoma of the prostate can be inferred. Another result showed that 41.8% of the subjects had no prior familiarity of adenocarcinoma of the prostate. Out of every participant, only 16.8% knew that the prostate gland is located under the bladder. A greater proportion of participants (68.2%) acknowledged that prostate tumors could affect men.Of those who participated, 15% knew about potential factors linked to

cancer of the prostate. Of those polled, just under half (33.2%) knew the early indications and symptoms of cancer of the prostate. Of those who knew about the symptoms of cancer of the prostate, only 10.3% could enumerate them. Only thirty-eight percent (30.8%) of the participants knew about screening for adenocarcinoma of the prostate. Additionally, the Chi-square analysis result indicated a significant correlation (X2=11.94, p=0.0039) between respondents' knowledge and adenocarcinoma of the prostate screening(Morrison et al., 2017).

2.7.2 Perception on Prostate Cancer Screening

In accordance to their findings, the 48-point scale used to measure the respondent's assemble perception variable possessed a mean of 31.88±5.63 (Morrison et al., 2017). A 12-point Likert scale was used to evaluate perception-related sub-variables, such as perceived vulnerability and perceived urgency of cancer of the prostate. The subject's average scores were 7.03±2.13 and 8.22±1.76, respectively. Furthermore, the average scores of those taking part on the 9- and 15-point assessments of the benefits and obstacles were 6.08±2.00 and 10.6± 2.54, accordingly In accordance to some of the viewpoints shared by those who took part reflecting their understanding of the disease, men over the age of 50 have a greater chance of getting prostate tumors (56.5%), while only white people are impacted by the disease (48%). In terms of severity, more people (63.4%) agreed that adenocarcinoma of the prostate is a deadly disease, while fewer people (32.1%) believed that there was no cure for cancer of the prostate. According to the subjects, there are two benefits associated with undergoing prostate cancer screening: the first is that it can aid in early identification of adenocarcinoma of the prostate (53.2%), and the second is that it can reduce the risk of dying from adenocarcinoma of the prostate (59%). Cost (29.2%), being uncomfortable (26.8%)

when talking to a healthcare provider about prostate issues, and fear of screening (58.2%) were the three main perceived obstacles to screening (Morrison et al., 2017).

Men's attitudes toward a digital rectal examination and serum prostate-specific antigen testing for the aim of detection of adenocarcinoma of the prostate have been the subject of extensive research in the medical community (Wachira, Meng'anyi, & Mbugua, 2018). While numerous investigations have been performed conducted on the efficacy, features, and capacity of adenocarcinoma of the prostate screening to detect clinically significant prostate cancer while it continues to be treatable, additional study is needed to better comprehend the attitudes of men who use cancers of the prostate screening services (Enemugwem et al., 2019b). According to studies, men who undergo screenings are more inclined than those who don't to learn about the risks of cancer of the prostate and the compensations of screening (Farazi et al., 2019). On the other hand, increased awareness of screening facilities is not always associated with detecting prostate cancer. Therefore, men's attitudes regarding cancer detection screening would likely improve if they were educated about it (Morlando et al., 2017b).

In Nigerian society, cancer of the prostate is not frequently detected, which contributes to the low level of understanding regarding the significance of screening. The lack of uptake in cancers of the prostate has been associated with multiple factors (Shaqran et al., 2023). Among the risk factors mentioned are a lack of information about prostate tumors, a low sense of one's own fragility, a lack of funds to pay for screening, and negative beliefs about the root of the illness. Research has also shown that these factors are important for encouraging men to undergo prostate screening, even in areas with high prostate cancer awareness(Shaqran et al., 2023).

According to Ezeama MC and Enwereji EE (2023), these factors have nevertheless led to problems with most cases being identified too late, which has increased the fatal rate of cases dealt with in most hospitals, which includes Imo State University Hospital. The present research looked at the views and understanding of men getting prostate tumor screening at the Imo State University Teaching Hospital in Orlu. Additionally, it revealed their favorite examination types and medications they underwent. Thus, it is advantageous to encourage men to take part in prostate cancer prevention programs since it facilitates early identification and management. According to the research's findings, 84 men, or 70%, were aware of cancer detection screening methods, compared to 36 men, or 30%, who were not (Ezeama MC & Enwereji EE, 2023). In terms of favored examination techniques, 108 (90%) participants were aware of PSA tests, whereas 12 (10%) were unaware of a favored method for detecting cancer of the prostate. The overwhelming majority of those who participated had a median rating of 44.6, with a median score of 2.8; however, they were generally in favor of using screening techniques for cancer of the prostate. According to Ezeama MC and Enwereji EE (2023), knowledge of the risk factors for adenocarcinoma of the prostate was found to be insufficient, with an average score of 21.6.

To lessen the effects of illnesses such as prostate cancer, it is critical to assess people's attitudes, knowledge, and practices to pinpoint the main areas that require intervention(Adibe et al., 2017c). Studies conducted in other nations that assessed these variables, for example, were able to determine the part that political will and healthcare professionals could play in raising awareness and promoting prostate cancer screening(Parker et al., 2024b). Furthermore, a lack of understanding or a low level of awareness about adenocarcinoma of the prostate has been related with poor prognosis and advanced disease (Molazem et al.,

2019). 197 participants (98.5%) in the study had an upbeat perspective toward cancer of the prostate screening, while only three people (1.5%) had an adverse perspective toward the procedure (Gift et al., 2020a). There was no statistically significant association found between age as well as mindset toward the necessity of cancer of the prostate screening ($p = 0.099$), understanding and perspective regarding cancers of the prostate cancer screening ($p = 0.868$), or practice over the preceding two years and attitude toward cancers of the prostate cancer screening ($p = 0.291$).Out of the 200 subjects, 67 (33.5%) were aware of cancer of the prostate, while 133 (66.5%) weren't aware of it. A doctor or nurse was mentioned as a trustworthy source for knowledge by the majority of those who were aware of cancer of the prostate (55.3%) (Gift et al., 2020b).

In an investigation conducted by O. Ojo et al. (2020), only 9% of participants indicated they believed they were susceptible for prostate cancer, while 54% believed the disease was uncommon in Nigeria and 37% believed it was a myth. Nonetheless, 55% of those surveyed felt that all men have a danger of acquiring cancer of the prostate, and 61% of subjects agreed that they ought to have a screening if there was a family record of the illness (O. Ojo et al., 2020).Furthermore, 68% of the poll participants said that because men may be susceptible for cancer of the prostate, examination is a good idea. O. O. Ojo et al. (2020) found that, according to the information given, 90% of those polled believed cancer of the prostate to be a serious illness, 84% believed it could be cured, 28% believed the average patient with cancers of the prostate wouldn't live longer than five years after the illness began, and 71.2% disagreed. In a similar vein, 20% of respondents agreed and 79.3% disagreed that it previously too late to treat cancer of the prostate appropriately at the time of receiving a diagnosis.

The study conducted by Wiafe et al. (2024) examined the understanding, views, and opinions of women with regard to adenocarcinoma of the prostate. In regards to the warning signs and symptoms of the disease, between 63.60% and 77.50% of those surveyed provided affirmative answers. When it came to infertility or sexual weaknesses, on the other hand, 67.70% of the partakers were misinformed about the symptoms of adenocarcinoma of the prostate. Wiafe et al. (2024) found that the range of correct responses to the understanding of questions concerning risk variables and underlying causes was 50.40% to 64.40%. According to Wiafe et al. (2024), they also observed that the respondents were almost evenly divided in their acknowledgment of mobile phones as a cause or contributory factor for said illness. There was similar disagreement about whether family history was linked to an increased risk of illness.

According to their research, adenocarcinoma of the prostate is a disease that most respondents (80%) knew of, but most respondents (75%) were unaware of anyone who had the illness, and 98% did not know of anyone who had died from it(Wachira, Meng'anyi, & Ruth, 2018). The most frequently cited information source (55.2%) was mass mediaMerely 6.4% of participants indicated that they acquired information from medical experts. This indicates a lack of knowledge among healthcare providers in the community, especially with regard to hospital visits. Cancer of the prostate symptoms and signs, as well as screening, treatment, and prevention, are not widely known. 87% of those surveyed said they had no idea what symptoms of a disease were. When requested about the prevention of cancer of the prostate, the majority of those who responded (52%), stated that it cannot be done. Regarding prevention of cancer of the prostate, 43% of participants indicated they would maintain a diet that was nutritious, 40% indicated they would undergo regular screenings, and 8.6%, 5.7%, and 2.8% indicated they would utilize condoms, refrain from having more than one partner,

and maintain proper genital sanitation, respectively. This is alarming because it demonstrates the widespread misconceptions and incorrect assumptions about cancer of the prostate in the community. Seventy-one percent of participants said that there is no known treatment for adenocarcinoma of the prostate. Of the few individuals who thought cancer of the prostate was possible to be cured, 65% knew it was possible to cure it at its earliest stages, 20% knew it could be healed in any stage, and 15% weren't sure when it could be cured. According to Wachira, Meng'anyi, & Mbugua (2018), 64% of those surveyed were not aware that cancer of the prostate screening was available.

The vast of those polled had limited knowledge about prostate cancer, including its symptoms and signs, prognosis, mitigation, and available examination options. Myths and fallacies regarding the prognosis and prevention of cancer of the prostate exist, indicating the necessity to close gaps in knowledge in this field (Wachira, Meng'anyi, & Mbugua, 2018). These results were in line with those of an earlier investigation among urban Nigerians who were native-born and low-educated. The previous research found that a significant proportion of men (71%) knew little to nothing about cancer of the prostate, such as screening (Ajape et al., 2010). Similar outcomes were found in a Chinese study as well, noting low awareness of cancer of the prostate (So et al., 2014b). Similar findings were observed for men of African American and African American descent, who performed poorly on tests of general prostate tumor knowledge, especially in relation to risk factors, executives, assessment, and avoidance (Ogunsanya, Brown, Odedina, Barner, et al., 2017a)a. Men need to be given more health information regarding those areas in order to enhance their capacity to make informed choices about examining uptake.

2.7.3 Attitude on Prostate Cancer Screening

Regarding what the participants thought assessment of their personal susceptibility to cancer of the prostate, 37% believed they were in danger of developing the illness, whereas 63% did not. Eight percent of those surveyed thought they might develop cancer of the prostate in the future (Wachira, Meng'anyi, & Mbugua, 2018). Ninety-one percent of respondents thought prostate cancer was an uncommon disease, while the remaining 99% thought it was a serious condition. With respect to the respondents' fear of developing prostate cancer, twenty-three percent of them expressed a range of fears, from extreme fear to believing that it is God's will. The participant's fatalistic perceptions of cancer of the prostate were measured using a Likert scale with a score of 4 (1 being firmly disagreed, 2 disagreed, 3 agreeing, and 4 intensely agreeing). The mean percentage of participants who expressed fatalistic views about adenocarcinoma of the prostate was as follows: strongly disapprove (8.3%), differ (29.5%), concur (46%), and firmly concur (16.2%). 62.2% of respondents had fatalistic opinions about prostate cancer (Wachira, Meng'anyi, & Mbugua, 2018). Men who hold fatalistic convictions are led to believe that their actions have no influence on the circumstances surrounding the development or treatment of cancer. Early detection of adenocarcinoma of the prostate is hampered by fatalistic views and cancer-related anxiety (Grunfeld et al., 2013). A noteworthy segment of participants held pessimistic views regarding adenocarcinoma of the prostate. A study conducted in a rural area revealed similar results (Wachira, Meng'anyi, & Mbugua, 2018).

Of men in a Kenyan community, 75% of them, believed that prostate cancer is fatal and, significantly, feared receiving a prostate cancer diagnosis. The intention to start screening is also linked to fatalistic beliefs(Mutua et al., 2017c). Death-oriented attitudes about prostate tumors have been connected to low educational attainment as well as a lack of knowledge and comprehension of the condition Planning is necessary to dispel men's misconceptions

about prostate cancer and encourage them to adopt health-preventive behaviors that can help them avoid developing the disease(Dickey et al., 2020).

Only 24.2% of those who responded to their investigation claimed to be aware of what cancer of the prostate was, and over one-third of them lacked an adequate comprehension of the condition (Chisamba et al., 2023). According to Chisamba et al. (2023), these results imply that participant understanding of cancer of the prostate is limited. Furthermore, very few participants in the study were keen to use services for checking for prostate cancer. In a study carried out in rural Zimbabwe, (Moyo, 2017) found an analogous trend, where preconceptions affected people's knowledge of cancer of the prostate and, consequently, their intentions to get screened for the disease. In their study of an audience of men in Uganda, Nakandet al. (2013) found that low PC awareness reduced their willingness to screen for PC. These results align with the findings of the earlier research. Even though 45.9% of the men in the research population (n = 545) had been aware of adenocarcinoma of the prostate, the authors found that many of them mistakenly thought it was gonorrhea after researching their knowledge. On the other hand, 52.5% of the 426 men (Osei Agyemang et al., 2022) who were screened for cancer of the prostate had adequate knowledge, but 65.8% of them knew nothing about the disease.

Less than 9.0% of the poll participants indicated that they knew of any men who had prostate tumors or who had relatives with a history of the disease, which further demonstrated the respondents' ignorance of who should be examined for the disease (Chisamba et al., 2023). Moyo (2017) discovered that men from rural Zimbabwe lacked the knowledge of who ought to be screened. Furthermore, more than 80% of the study participants who declined screening did so because they were in good health on the other hand, Mutua et al., 2017c found that 66% of the Kenyan men in their sample thought they were susceptible of developing prostate

cancer, and 44% planned to be examined within the first six months of their participation in the research.

A separate investigation discovered that, of the 2000 individuals who answered the survey, 72.90%, 72.20%, and 35.70% said they agreed with the statements that "men who develop cancer of the prostate cannot engage in sex interactions with their wives," "a woman may suggest to men to be tested for adenocarcinoma of the prostate," and "prostate cancer examinations must be free to each man," respectively (Necku et al., 2019). 58.95%, 46.30%, and 47.70% of those surveyed, respectively, gave an affirmative answer to the belief items that included "absolute nothing can be done to spare a person with cancers of the prostate cancer," " adenocarcinoma of the prostate is a household disease," and "prostate malignancies is a mystical disease" (Necku et al., 2019).

Prior studies have indicated that men in general do not take cancer of the prostate very seriously. According to Tan et al. (2020), knowledge, financial constraints, and an individual's evaluation of their risk for illness are important determinants of whether or not they will have a cancer screening. Status in marriage, history of family members, medical coverage, and expertise are just a few of the socioeconomic factors that have been found in earlier research to indicate men at risk of the disease's opinion about their own susceptibility (Morhason-Bello et al., 2019). Furthermore, research has indicated that the general population's perception of their vulnerability to cancer is influenced by this perception. Nevertheless, it is unknown how these elements and male healthcare workers' perceptions of their own susceptibility to prostate cancer affect their willingness to undergo screened(Loeb et al., 2018).

Conferring to Saleh, Fooladi, et al. (2020), the results of the investigation did not reveal any relationship between respondents adoption of cancer assessment for prostate cancer and their opinion of self-vulnerability or how this perception might be predictive of such adoption. This might have been explained through the fact that male medical professionals believed they were more vulnerable to screening-related awkwardness and risks than they were to examination for prostate carcinoma. Furthermore, male healthcare professionals might perceive prostate cancer as a client-related issue rather than a serious medical condition(Saleh, Fooladi, et al., 2020). It is called optimistic bias when it comes to this phenomenon. When people think they have a lower chance of experiencing a negative health event than others, this is known as optimistic bias. They believe that a disease can only afflict other people and not themselves as a result (Ogunsanya, Brown, Odedina, Barner, et al., 2017a). This may help shed light on why, in contrast to the present investigation, previous study has found a connection between prostate cancer detection screening as well as perceived self-vulnerability in people of all ages. Testing for prostate cancer has been associated with apprehension risk, and harm in the past (Di Pietro et al., 2016; Lillard et al., 2022). An upward view among male medical professionals could also be the cause of this.

Male medical professionals over 60 years old were more inclined to think they had a chance of developing prostate cancer than younger colleagues (Opondo et al., 2022a). According to this research, older men believe they were more susceptible than younger men. The age difference in perceived susceptibility to cancer of the prostate may be explained by the experiential component of risk perception. Put differently, physicians who are 60 years of age or older are more likely to be concerned about prostate-related cancer because they have dealt with an increased percentage of cases of the disease (Opondo et al., 2022b). These results are steady with another study that found that older black males were more likely to

believe that they were at risk of receiving a cancer diagnosis(Conde et al., 2019). Their study(Adibe et al., 2017a) revealed an intriguing finding: individuals from rural areas were more likely than those from urban areas to believe they were more susceptible to prostate cancer.

When comparing Africa with other parts of the world, high prostate cancer death rates are linked to higher mortality(Mutua et al., 2017a). The limited availability of early detection and screening methods is the reason for this pattern. Cancer of the prostate screenings are performed on merely 50% of African-American men. According to Adeloye et al. (2019), these rates, which range from 0 to 11%, are significantly lower in Africa. In Kenya, prostate cancer screening is conducted in 4.1%–11% of males. Additionally, most (87.5%) patients who visit Kenyan hospitals do so when their cancer has progressed to stages III(C) and IV (D)(Singh et al., 2014). Furthermore, Kenya's screening rate for prostate cancer remains low despite extensive education campaigns that raise awareness of the disease(Kinyao & Kishoyian, 2018b). Given this information, the question that needs to be answered is: Why aren't more men getting examined? Is this a question of personal behavior or is it related to broader societal and contextual variables like how culture affects behavior?

Globally, screening practices among men have been linked to a lack of awareness, fear, and cultural beliefs. Studies of ethnicity have become increasingly associated with cultural beliefs, but little is known about these beliefs or how they come to be held(Machirori et al., 2018). A review of the literature revealed that many studies on the subject were primarily concerned with evaluating people's knowledge about prostate cancer, with little or no definition of "culture." The UK and USA are also heavily represented in the literature(Machirori et al., 2018).

The Theory of Planned Behavior (TPB), which links beliefs and explains how people act, has been used to explain the relationship between cultural customs and screening adenocarcinoma of the prostate (Adewoye et al., 2023). This theory states that an individual's intentions for conduct, which in turn determine their behavior, are influenced by their mindset and opinions toward an action, the effect of their social surroundings, and their impression of control over the resources and abilities required to carry out what they do (Rogers et al., 2022). This theory offers a framework for evaluating the associations between the intention to screen and behavioral beliefs (such as fear, perceived behavioral control, and the influence of significant others), normative beliefs (such as the influence of others on one's behavior and benefits of screening), and social interactions (which are shaped by cultural factors) (Erena et al., 2020a).

Numerous studies have looked at cultural aspects of cancer screening in an effort to underst and why certain groups decide to adopt or reject advised behaviors(Berenguer et al., 2023). These factors involve, among other things, a number of attitudes and beliefs: fatalistic notions (events beyond a person's control); anxiety of screening; perceived advantages of screening; and the impact of family (relatives, peers, prostate tumor survivors, etc.). African Americans are more likely to adopt fatalistic beliefs and feelings of fear, which can delay evaluation, according to qualitative analysis (Sammon et al., 2016).

These conclusions are supported by empirical investigations that show an association between anxiety and cancer detection, even after controlling for background variables like socioeconomic standing, socioeconomic status, and education (Mumuni et al., 2023b). A study using the Theory of Planned Behavior found that African Americans had substantial opinions about the benefits of screening, no symptoms of fear or anxiety, and relatively weak fatalistic convictions (Y. Kim & Alhassan, 2023). It is difficult for investigators to determine

when anxiety becomes an obstacle or an enabler for examinations. Even after accounting for the influence of fear and fatalism, the perceived importance of screening for adenocarcinoma of the prostate has been connected to the the intent to screen, according to both quantitative and qualitative studies done among African Americans (Gomes et al., 2015). The perceived advantages had a noteworthy correlation ($r = 0.285$, $p = 0.018$) with the desire to screen for prostate carcinoma (Gomes et al., 2015).

Pressure from family members may affect decisions about checking for prostate cancer and adherence to treatment. Myers et al. (2021) conducted qualitative investigations to identify key beliefs, obstacles, and incentives associated with early detection of adenocarcinoma of the prostate behaviors. The findings indicated that significant others, such as spouses, family members, peers, and cancers of the prostate cancer survivors, positively influence the promotion of cancer examinations. Decisions about cancer of the prostate assessment were heavily impacted by family. In an African American study using the Theory Planned, a desire to screen had a strong association with social pressure from family members (Odedina et al., 2019). In conclusion, the majority of the data that is currently available was gathered through qualitative investigations on men of African American and Caucasian American descent's desires to get screened for cancer of the prostate. Due to a dearth of quantitative research, little is known about African men's prostate cancer detection practices (Davis et al., 2010). Very little research, particularly in Africa, uses a theoretical framework that demonstrates how culture influences behaviors associated with health.

Mutua et al. (2017a) found that the group being studied had a mean score of 3.6 (±SD 0.8) for fatalistic convictions regarding cancer of the prostate screening, which indicates that the sample had comparatively favorable beliefs regarding these conditions. About two thirds of the subjects said they believed in fate. They wanted to stay in the dark about their prostate

cancer diagnosis because they believed that nothing could stop it if it was meant to happen . The average fear score of 3.2 (±SD 1.2) indicates a relatively high level of anxiety or fear related to the prostate tomor screening. Thirty-seven percent of the men said they were anxious about receiving a positive diagnosis and worried about potential physical discomfort related to prostate tumor screening. Strong beliefs about the benefits of screening were indicated by the mean score of 4.2 (±SD.8) for professed benefits of screening. Because the benefits of screening outweigh the discomfort related to the test, people believe that adenocarcinoma of the prostate screening is a helpful tool for managing prostate cancer early. Nearly 90% of men said that cancers of the prostate screening is a good approach to treat adenocarcinoma of the prostate early on, and they also agreed that the advantages surpassed any challenges associated with testing. With a mean score of 3.9 (±SD 1.0) for the influence of families, it was clear that family members had a significant impact on the screening process for adenocarcinoma of the prostate. The overwhelming majority of men (89%) stated that they would heed the advice of their closest relatives when it came to prostate cancer screening.

Their research revealed that although men believed they were susceptible to prostate tumors, they didn't believe that men over 40 were more at risk. Few people actually underwent testing, despite the benefits of screening (Blocker et al., 2021). The general populace had a strong fatalistic belief that cancer was going to eventually strike them no matter what they did. They also feared that testing could return positive results, and that screening would be uncomfortable. Nevertheless, the desire to screen for carcinoma of the prostate was uncorrelated with these factors, testing anxiety, and fatalistic views. Their research indicates that the motivation to screen for cancer of the prostate is most effectively explained by family pressure or influence (Blocker et al., 2021). Black men suffer from some of the most severe

rates of cancer of the prostate when compared to men from different ethnic backgrounds (Atulomah et al., 2019). Black men may receive a delayed diagnosis or a more severe form of prostate cancer because they rarely use services related to prostate health(Atulomah et al., 2019). Black men's behaviors regarding the use of cancer services have been attributed to factors such as culture and ignorance. Multilevel cultural influences and beliefs regarding prostate cancer revolve around individual, societal, and larger structural factors(Allen et al., 2020). Understanding the interactions between these variables aids in developing strategies to promote increased engagement with prostate cancer services, guarantee earlier diagnosis for men, and improve their current health(Aizer et al., 2020).

According to their research, one factor that supported and shaped beliefs was the cultural custom of not challenging authority figures(Adeloye et al., 2019). This made it difficult to voice concerns or have conversations about prostate cancer if the first consultation seemed to downplay them. Most African American and Caribbean men exhibit this. Men's contacts with healthcare professionals are further diminished if they believe that their well-being is something that is confidential and refrain from discussing issues related to their prostate wellness (Adeloye et al., 2019). When men come into contact with female healthcare workers, these cultural views about them get worse as their level of awkwardness rises. Additionally, medical centers were feared by society because they were perceived as locations of illness and death (Deshpande et al., 2019).

According to their study findings, there were differences in general views about who was affected by the illness(Luque et al., 2020). Men differed socially in their vulnerability to prostate cancer; some thought it was a disease that only affected Black men, while others thought it affected more Caucasian men. On the other hand, men apparently believe that they

could prevent prostate cancer by controlling their diet and exerting themselves(Luque et al., 2020). On the other hand, (Nakandi et al., 2020) suggested that some Black men thought that people who thought about the illness or were screened for it eventually got a diagnosis. Although some men believe that cancer of the prostate and related deaths are normal parts of aging and life and should not worry younger men, there is still a fundamental dread of these illnesses in society (Allen et al., 2018).

A more subjective belief held that prostate cancer was a divine punishment and that one needed religion to help them deal with the news(Ojewola et al., 2017)Despite their limited financial standing, Faith encouraged Black men to take responsibility for their health because they felt it was their duty to protect themselves and their households from disease and to set an example for their kids and community. This turned the social and personal macho conversation on its head (Parker et al., 2024c). Seeking treatment from health professionals is motivated by personal faith, which reinforces one's faith in both God and medicine(Morlando et al., 2017c). Wellness practices and beliefs related to cancer of the prostate included ideas about sexual conduct, religion, and responsibility. Men's perceptions of cancer of the prostate were influenced by these discussions, which provided some insight into the social and wellness contexts in each of the subjects countries of origin (Morlando et al., 2017c). According to one view, prostate carcinoma was brought on by sexually explicit behaviors that were generally frowned upon in these diverse communities (Leyva et al., 2016). According to Molazem et al. (2019), a portion of research participants, who were primarily African rather than African American or Caribbean, thought that cancer of the prostate was transmissible through sexual activity. There were those who held the belief that an excessive number of extramarital affairs led to the accumulation of dirt, which in turn was linked to adenocarcinoma of the prostate. While most people believe that having multiple

sexual relationships increases the risk of adenocarcinoma of the prostate , especially in younger men who have a tendency more inclined to engage in sexual activity, some men disagree (Lumbreras et al., 2023). Rather, individual beliefs imply that a sperm accumulation brought on by not enough sex would eventually lead to cancer of the prostate (Taylor et al., 2021). Various studies have indicated that cultural influences are not specific to any one person(Campbell et al., 2020). Most knowledge seems to be either ingrained in people or acquired through actions, relationships with family, the community, and medical facilities(Ogunsanya et al., 2021). Their findings brought to light the need for doctors with comparable ethnic origins as well as the level of public trust in the medical system. It appears to be related to Black men's experiences with healthcare in the United States and the United Kingdom, and it shapes cultural perceptions centered on skepticism toward the medical profession. In African countries, where black men primarily interact with medical professionals who share their ethnic background, there does not appear to be as great of a demand for feelings of compassion and racial parity (Cobran et al., 2018).

There seems to be more trust in medical professionals in these countries, despite the fact that they face additional difficulties like expensive healthcare and restricted treatment options because of their low incomes. Thus, according to Cobran et al. (2018), positive interpersonal interactions have a variety of effects on cultural significance. Men of African descent are more inclined than their African-American equivalents to talk about their sexual lives, and media representations of cancer of the prostate in the United States and the United Kingdom have influenced public opinion by emphasizing sexual activity over the disease itself (Bache et al., 2022). The focus on additional medical problems, like HIV/AIDS in Africa and high blood pressure and diabetes in Caribbean countries, has caused cancer of the prostate to

receive less attention. Because they have a history of being associated with health involvement and are known to influence the cultural perception of cancer of the prostate, men from these diverse black backgrounds are affected differently by the media, health professionals, and the community (Bache et al., 2022).

2..7.4 Cultural Beliefs on Prostate Cancer Screening

There are several facets that address certain institutional systems and beliefs. Initiatives aimed at preventing prostate cancer in black men within the community, as opposed to GP clinics or hospitals, can cater to their communication preferences.(Filella et al., 2019) provided an example of how to understand community needs and illustrated how cultural knowledge can be used to improve information sharing in certain community interventions. Addressing prostate cancer-related beliefs in local spiritual communities and figuring out how men are more enthusiastic about checking for prostate cancer is one tactic that might be effective for religious or spiritually driven men (Ugochukwu et al., 2019b). It is imperative to differentiate the correlation between beliefs and cancer of the prostate from ignorance while highlighting the importance of this relationship, taking into account all pertinent factors that could impact the adoption of cancer screening for prostate cancer (Gebru et al., 2022). While education about adenocarcinoma of the prostate is important, it is not enough to dispel the myths that Black men hold about the condition and the reasons they choose not to seek treatment (Rao et al., 2022).

According to the national cancer control strategy, an evidence-based approach that emphasizes best practices and respect for gender and cultural diversity are two fundamental ideas guiding the strategies for cancer prevention(Kinyao & Kishoyian, 2018b). The report also suggests other preventive measures such as limiting alcohol consumption, encouraging

a healthy diet and regular exercise, reducing tobacco use, limiting exposure to environmental carcinogens, and limiting biological agents that trigger cancer. Although it is mentioned in the report (Mutua et al., 2017a), the overall strategy does not specifically address the role in terms of gender and cultural variation in cancer early detection and treatment. A people's culture is their collective consciousness, experience, values, beliefs, views, religion, and their concepts of time, roles, space, and the universe. It also includes the tangible goods and possessions that a group of people has accumulated over time through individual and group efforts. Different cultural groups have different ways of feeling, thinking, and acting (Babb et al., 2019).

Cultural beliefs encompass the values, norms, traditions, and practices of a group of people. These beliefs profoundly shape individuals' perceptions and behaviors regarding health, illness, and medical interventions(Morlando et al., 2017d). Cultural considerations can help or hinder a decision to undergo screening tests for prostate-related cancer, such as the digital rectal examination (DRE) or the PSA, or prostate-specific antigen, test (Turkan et al., 2016). Cultural attitudes that have a negative impact on screening behavior may be the cause of underscreening for cancer. Deeply rooted cultural norms in communities are often closely associated with these mindsets and barriers. According to (Husaini et al., 2022), a number of variables may affect medical choices and behavior, including patient views and preferences, racial agreement between the doctor and patient, schooling, understanding, literacy, and geographic access. However, the importance of each of these variables differs depending on the patient and the doctor. A person's comprehension of cancer, explanations for it, and emotional reactions to a diagnosis are inclined by their culture(Joachim et al., 2018). It is possible to take health and sickness for granted in daily life. They may not think of themselves as sick when they are asymptomatic(Khan et al., 2019).

There is false information about cancer among various cultures and ethnic groups. For instance, one study found that patients frequently reported false beliefs about cancer, such as the notion that cancer is caused by high blood pressure, exposure to contaminated air, or surgery causing tumors to spread(Dewar et al., 2018). In a separate investigation, patients who believed that "surgery causes cancer of the lungs to spread" were less inclined to receive therapy suitable for the illness's stage, even in cases where the tumors were not in stages of progression (Cassim et al., 2020). According to Huang et al. (2024), additional research that looked at the knowledge, attitudes, and beliefs that people with Chinese, Filipino, Korean, and Vietnamese ancestry held about cancer found that, although 25.7% of Chinese Americans believed the disease was contagious, 71% of Vietnamese American women in the study had no idea what the disease was.

Talking about medical problems is taboo in certain societies, especially when they involve the sexual as well as reproductive systems. Men may be reluctant to undergo a testing for prostate cancer because they are ashamed or worry that they will be viewed as weak whenever they seek medical attention (Bernard et al., 2020). Traditional notions of masculinity that emphasize toughness and self-reliance discourage men from acknowledging health problems and seeking preventive care. This can result in delayed diagnosis and treatment(Steele et al., 2017). Cancer is considered a taboo topic among Asians and frequently results in prejudice and rejection from the community. It was also discovered that men were afraid that if there was a shortage of male health professionals, their modesty might be compromised(Jemal et al., 2021). These anxieties cause people to discontinue or avoid receiving cancer treatment. Men would not try to find a disease through screening if they were not aware of any symptoms of illness in themselves, according to(Negoita et al., 2018), out of concern that they would become ill. Men would prioritize maintaining and enhancing

their general health and well-being while screening for unknown diseases. While some populations believe they are not susceptible to certain cancers, others are unaware of the importance of screening(Iyengar et al., 2020). Some community members believe that people's destinies are predetermined by God; therefore, routine breast screening is not important(Siegel et al., 2020).

According to studies, African American men are less likely to be screened for adenocarcinoma of the prostate, but their incidence and death rates are higher. Cancer screening intentions are highly influenced by variables like cultural beliefs, distrust in medicine, and access to medical care (Mofolo et al., 2015). In some Asian cultures, discussing sexual health is considered inappropriate, leading to low awareness of and participation in adenocarcinoma of the prostate screening(Kaninjing et al., 2018). Traditional medical practices may also influence healthcare choices. Language barriers, immigration status, and cultural beliefs about machismo can affect screening behaviors. Family-oriented health interventions have been effective in improving screening rates in these communities(Von Pressentin et al., 2018).

Insufficient knowledge about prostate carcinoma and its early identification advantages may lead to a decrease in the intent to screen. Low levels of health literacy can be caused by cultural beliefs that place little value on preventative health care (Tindall et al., 2014). Cultural myths and misconceptions about cancer (e.g., viewing it as a death sentence or believing that screening causes cancer) can deter men from undergoing screening(Sánchez-Martin et al., 2024). Some individuals may rely on spiritual or traditional healing practices instead of conventional medical interventions. Beliefs that health outcomes are predetermined by higher power can lead to fatalistic attitudes and decreased motivation for screening(Sung et al., 2021). Religious dietary restrictions and lifestyle practices can

influence perceptions of cancer risk and the necessity for screening. Past experiences of discrimination or mistreatment within the healthcare system can foster distrust, particularly in minority groups. This mistrust can make men hesitant to participate in screening programs offered by healthcare institutions(Wang et al., 2022b).

Metaphors were used to describe cancer in studies involving Italian communities. Participants thought that even with treatment, patients with cancer would never be able to recover(Yeboah-Asiamah et al., 2017). (Yimer et al., 2014) discovered that two major barriers to participation were being less contented with self-administration of a FOBT (59% "contented" versus 81% of all those aged 50 or more) and lack of confidence and feeling embarrassed about in quest of help or info on bowel cancer (16% versus 9% of the total sample). Similarly, (Klein et al., 2020) discovered that the main cultural obstacle preventing older Italian women from participating in breast and cervical cancer screening is embarrassment. It is clear that each community has a different culture. This indicates that knowledge, attitudes, behavior, and health profiles are unique to a community, vulnerabilities, and cancer-related decision-making processes(Reiter-Brennan et al., 2021). The lack of culturally sensitive healthcare services and communication barriers can impede effective patient-provider interactions, affecting screening intentions(Peisch et al., 2017). Support and encouragement from family members and community leaders can play a noteworthy role in influencing well-being behaviors. In cultures where collective decision-making is prevalent, community endorsement of screening can boost participation rates(Tsodikov et al., 2017). Positive testimonials and shared experiences of peers who have undergone screening can alleviate fear and motivate others to participate. Cultural groups facing socioeconomic disadvantages may prioritize immediate needs over preventive health

measures because of financial constraints, even if cultural beliefs support screening(Pakzad et al., 2021). Certain cultural groups engaged in specific occupations may perceive themselves as at higher or lower risk, influencing their screening decisions(Sanghera et al., 2018).

Reproductive language is not allowed in Kenya between age groups and genders because of cultural norms. Some diseases are taboo to discuss in public because of cultural beliefs. When discussing symptoms of breast, cervical, or adenocarcinoma of the prostate, as well as body parts affected by the disease, it is common to use taboo(Nyarigoti et al., 2017). Because they affect "parts of the body, you do not openly speak about prostate and cervical cancer, for instance, are highly stigmatized. Women with breast and cervical cancers may be reluctant to tell their doctors about the symptoms they are experiencing and may be even less willing to undergo the necessary physical examinations to determine the causes of the symptoms(Mutua et al., 2017a). For example, the breasts in some Kenyan communities signify more than just providing food for young children. It has come to light that, among the Luo community, older people curse people who offend them with their breasts(Mutua et al., 2017a). If a person who has been cursed does not go through a cleansing ritual, they will not be at peace for the rest of their lives. Because the affected areas are too private to disclose, there is no specific term for prostate cancer(Nyarigoti et al., 2017).

Because of cultural differences and the disease's sensitivity, people in most Kenyan communities refer to it as "ugonjwa ya wazee," which is Kiswahili for "men's disease." Talking down to people who are ill is prevalent. According to Nyarigoti et al. (2017), breast cancer is more prevalent in the Kikuyu community than the other two types of cancer. While cancer of the breast was still regarded as a private matter, according to the those who

participated, it did not affect areas "below the belt," and it was more common in women than cancers of the prostate and cancers of the cervical cavity. It was also more widely discussed in the community (Nyarigoti et al., 2017). According to one of the study's doctors, he did not encounter many cultural barriers from young people when it came to screening for and discussing breast, prostate, or cervical cancer(Kinyao & Kishoyian, 2018b). However, cultural difficulties have surfaced when caring for elderly patients, particularly those living in rural areas. Initially, these patients arrive at advanced stages of cancer, most likely as a result of their unwillingness to discuss their symptoms. Second, because of cultural ramifications, they want to choose who will take care of them when they arrive. For example, a Maasai man in his eighties would not want to see a female doctor, and it would be worse if the doctor looked younger because it would be difficult to have a candid conversation(Kinyao & Kishoyian, 2018b).

2.8 Research Gap Identification

While several studies have explored various aspects of prostate cancer (PC) awareness, screening, and related factors in Kenya, a significant research gap remains in understanding the impact of female partner-specific interventions on PC detection. Previous studies have primarily focused on the cultural, social, and personal factors influencing men's decision-making regarding PC screening (Mutua et al., 2017b; Mbugua, Oluchina, et al., 2021; Opondo et al., 2022b; Erena et al., 2020b).

However, there is a lack of research specifically examining the effectiveness of tailored brochures and message framing targeted at female partners in promoting PC screening among their male partners. This is particularly important in developing countries like Kenya, where female partners often play a significant role in health decision-making (Andrykowski & Pavlik, 2011; Van Jaarsveld et al., 2015).

Additionally, the concept of fatalism, which has been reported in studies on PC screening in developed countries, requires further exploration among African men in developing nations. A comprehensive understanding of the contextual factors influencing men's decision-making regarding PC screening is essential for designing effective interventions.

Overall, while existing research has provided valuable insights into PC screening in Kenya, there is a clear need for more studies focused on the impact of female partner-specific interventions, the role of fatalism, and the broader contextual factors influencing men's decision-making. By addressing these research gaps, we can develop more effective strategies to improve PC screening rates and outcomes in Kenya.

2.9 Theoretical Framework

2.9.1 Social learning theory

In 1977, Banduras proposed this theory. An appropriate theoretical framework for investigating the effect of brochures targeted specifically at female partners on male partners' intention to screen for adenocarcinoma of the prostate in rural Kiambu, Kenya, is provided by the well-established psychological theory of social learning. According to this theory, people pick up new attitudes, behaviors, and values by seeing, imitating, and being encouraged by the people in their immediate surroundings and by those who are important to them. In this instance, the brochures' goal is to give female partners knowledge that will enable them to persuade their male partners to get screened for prostate tumors.

Social learning theory states that people are far more inclined to embrace novel habits if they believe they are worthwhile and doable (Horsburgh & Ippolito, 2018). Therefore, the brochures were crafted to deliver clear and concise information that was easily understandable to female partners. Moreover, the theory highlights that reinforcing new

behaviors is crucial for promoting sustainability. Thus, the brochures provided information on prostate cancer screening, reinforced behavior, and provided resources that facilitated the screening process(Sukabumi & Syekk, 2023).

This theory has been used by researchers to understand how aggression and violence can be transferred through observational learning. Investigation on the way beneficial actions and social change are encouraged by good role models has been conducted using this theory. Assume a child witnesses their parents going to work every day, helping others at a nearby community center, and providing household assistance to their partner. In this case, the child is likely to imitate those actions. If these actions are rewarded, they are likely to be reiterated. In addition, problematic behaviors are covered by this theory. A person who sees someone mistreating others and getting paid for it may do the same(Durham *et al*., 2015).

According to this investigation, men are possibly more inclined to get screened for cancer of the prostate if they see others getting screened, especially those who they respect or who they identify with. Men may be inspired to follow suit if a well-known member of the community, a family member, or a peer opensly discusses their experiences with cancer screenings for prostate cancer. Media campaigns that depict men undergoing prostate cancer screening, especially when portrayed positively and as role models, can increase the likelihood of others adopting this behavior. This includes public service announcements, advertisements, or stories in the media that highlight the benefits of early detection. According to the Social Learning Theory, people are more probable to embrace behaviors if they believe that others will reward them for them. Men might be more inclined to get screened for adenocarcinoma of the prostate if they witness others benefiting from it, such as having peace of mind about their health or early identification of curable cancer.. By observing others who have undergone screening without negative consequences, men may feel reassured about the

safety and benefits of the procedure. This vicarious experience can reduce the fear or anxiety associated with screening, which is often a barrier to uptake.

The SLT asserts that people are more inclined to act in a certain way if they anticipate success. Positive expectations for outcomes can be shaped by awareness-raising and educational initiatives that make clear the medical advantages of early identification through screening. Men who understand that screening can significantly improve their chances of successful treatment and long-term health may be more inclined to participate. It is crucial to address any misconceptions or fears regarding prostate cancer screening, such as concerns about pain, embarrassment, or the accuracy of the tests. By providing accurate information and demonstrating the actual process through modeling, these negative outcome expectations can be mitigated. The Social Learning Theory accentuates the significance of imitation, self-efficacy, and learning through observation in the implementation of health-related behaviors like screening for adenocarcinoma of the prostate. Measures can successfully raise men's willingness to undergo cancer detection screening by utilizing role models, the media, social networks, and medical professionals in addition to encouraging positive outcome desires and self-efficacy.

According to SLT, people are influenced by the behaviors, attitudes, and responses of those around them, especially trusted individuals. In this context, male participants are likely to observe and be influenced by the health-conscious behaviors, attitudes, or recommendations of their female partners. If a female partner promotes prostate cancer screening through her actions, conversations, and encouragement, her male partner may observe and internalize these health-positive attitudes, increasing his likelihood of intending to undergo screening.

SLT emphasizes that people are more likely to engage in behaviors when they believe the outcomes will be positive. Through education and discussion, female partners can help reshape men's *outcome expectations*, highlighting the potential health benefits of early screening and addressing the risks of undiagnosed prostate cancer. When men perceive positive outcomes (such as early detection and treatment options) or understand the risks of not screening, they are more likely to consider screening. Female partners can help in framing these outcomes in a way that resonates with their male partners, thus positively influencing their intentions.

Social learning theory was suitable for the present investigation because it is consistent with its goals, which are to determine how female partner-specific brochures influence male partners' intentions to screen for prostate cancer in rural Kiambu, Kenya. Understanding how brochures can influence behavior change, especially when used in the context of interpersonal learning and encouragement, was clarified by this theory.

2.9.2 Prospect theory

In the 1970s, Kahneman and Tversky proposed this theory. This theory clarifies how individuals make decisions in uncertain situations. Prospect theory is a relevant and appropriate theoretical framework for studying the impact of positive and negative message framing on men's intentions to undergo adenocarcinoma of the prostate screening(Schwartz et al., 2008). This theory explains how people make decisions under uncertainty and risk by focusing on the subjective value of potential gains and losses, rather than the complete value of outcomes. In this case, positive framing emphasizes the benefits of prostate cancer screening, whereas negative framing highlights the risks of not undergoing screening. According to the theory of prospects, people are more likely to take action when they think

there are more benefits than drawbacks to the action. Therefore, encouraging men to get screened for adenocarcinoma of the prostateby emphasizing its benefits might have a greater impact on getting them to do so. However, a skeptical perspective that highlights the dangers of skipping examination could lead men to view screening as more risky and less important, which would decrease the desire to get screened.

Many research investigations have employed the prospect theory to comprehend various individual health decisions. Among other investigations, (Rouyard et al., 2018) employed it to investigate the perspectives of individuals with manageable chronic illnesses, the influence of defining on their desire to participate in clinical studies, and the inclination of female inmates to have HSV screening. The investigation's goals, which were to compare the effectiveness of both favorable and adverse message framing in urging men to get screened for cancer of the prostate, make prospect theory appropriate. This theory provides a clear framework for understanding decision-making in situations involving uncertainty and danger, which is relevant when it comes to prostate cancer screening. This theory provides a clear explanation of how people make choices in situations involving risk and hesitation, which is pertinent to cancer of the prostate screening.

People are typically reluctant to take risks when decisions are presented in terms of gains, according to Prospect Theory. Gain-framed messages emphasize the advantages of screening for prostate cancer, such as "By getting examined, you boost your chances of recognizing cancer of the prostate early when it remains most treatable." According to Adonis et al. (2015), this positive framing may persuade men that screening is a means of achieving health benefits. Prospect Theory, on the other hand, contends that when presented with possible losses, people are more inclined to act. Loss-framed messages for prostate cancer screening

might emphasize the risks of not being screened, such as "If you don't get screened, you might miss the chance to detect prostate cancer early, which could lead to more severe health outcomes." This framing leverages fear of loss to motivate actions. Prospect Theory posits that people weigh potential risks differently, depending on how they are presented. Increasing the perceived risk of prostate cancer, especially if framed in terms of potential loss (e.g., "You are at a higher risk of severe outcomes if you avoid screening"), can motivate men to undergo screening as a way to avoid the feared outcome. The theory also suggests that reducing the perceived risks associated with the screening process can improve uptake. For instance, messages that downplay the discomfort or inconvenience of screening, framing it as a minor step to avoid significant health loss, can encourage more men to participate(Adonis et al., 2015).

The prospect Theory offers valuable insights into how prostate cancer screening can be promoted by strategically framing messages to emphasize potential losses and gains. By understanding how men perceive risks and benefits and by carefully designing communications that align with these psychological principles, healthcare providers can effectively encourage greater uptake of prostate cancer screening.

According to Prospect Theory, individuals are more likely to take action when a decision is framed in terms of avoiding losses rather than achieving gains. In the context of prostate cancer screening, female partners can influence their male partners by framing the benefits of screening in terms of loss prevention (e.g., avoiding late-stage cancer and related suffering). A female partner might frame the message to her partner as, "Screening can help prevent serious health issues," which focuses on loss aversion (avoiding serious illness) (Rouyard et al., 2018). This aligns with Prospect Theory's insight that people are often more

motivated to avoid losses than to seek gains. People evaluate outcomes in relation to a reference point. For many men, especially in rural areas with limited health literacy, the reference point might be the status quo (not undergoing screening and assuming they're healthy). Changing this perception requires shifting the reference point to one that values proactive health behaviors(Rouyard et al., 2018). Female partners can help adjust this reference point by providing information on the high prevalence of prostate cancer and the benefits of early detection. By doing so, they can help men view screening as a normative behavior, reducing resistance to shifting away from the perceived safety of "doing nothing."

2.9.3 Health Belief Model (HBM)

This theory was put forth by HuchBaum, Rosenstock, and Kengeles in the 1950s. When the model was first developed, Rosenstock (1974) sought to explain why Americans did not embrace preventive methods, regardless of whether they were offered at no cost. Subsequently, the model was employed to understand compliance with medications and the patient's reaction to signs and indications. For examining the effects of constraints to cancer of the prostate detection on the relationship between independent variables and men's desire to screen, the Health Belief Model (HBM) provides a convenient theoretical framework.

The fundamental tenet of the HBM is that the choices someone makes about their health are shaped by their perceptions of the seriousness of an illness, the advantages of practicing prevention, and the obstacles to doing so. Lack of consciousness, financial limitations, and cultural beliefs are potential hindrances in prostate cancer detection. These barriers can prevent men from taking action toward screening, which is where the HBM comes in (Gholampour et al., 2018). The HBM suggests that a person's discernment of the severity of the condition and the benefits of taking preventive action can be modified by increasing their

awareness of the condition and the importance of preventive action. This can be achieved through educational and awareness campaigns(Khalil et al., 2024c).

Recently, the HBM has been utilized to characterize behaviors related to health and comprehend screening practices for a variety of diseases. The model is at present the one that is used for forecasting behaviors related to health the most frequently. Many research investigations have been conducted worldwide, and more specifically, a study by (Ghodsbin et al., 2014) can be held responsible for its rise in popularity. Recent research has applied this model in various ways. For instance, studies have been conducted to understand the abuse of technology, the desire to seek help among students experiencing psychological distress, and the willingness to adhere to immunosuppressive medications(Bahri et al., 2022). Moreover, the HBM suggests that barriers to taking preventive action must be addressed to encourage behavioral change. For example, if financial constraints are a significant barrier to adenocarcinoma of the prostate screening, financial assistance or health insurance coverage can be provided to overcome this obstacle(Kalani et al., 2022). The HBM is appropriate in that it aligns with research on how assessment obstacles for cancer of the prostate affect the relationship between men's desire to screen and independent variables. The model provides a comprehensive framework for understanding how behavior change can be impacted by views regarding the condition, the benefits of taking preventive measures, and barriers to action (Alshammari et al., 2021). The elements of the health belief model may have an impact on the number of people who get cancer of the prostate screenings.

Perceived Susceptibility:

A man is more probable to undergo screening if he believes he has a higher chance of contracting adenocarcinoma of the prostate. Men's perceptions of their susceptibility to

cancer of the prostate can be influenced and screened more often by educational campaigns that highlight risk factors like age, race, and family history. Men can better understand their own risk levels with the use of tools that offer personalized assessments of risk based on individual factors. This will increase men's perceived susceptibility to testing and motivation to get checked out.

Perceived Severity:

If men think it is a serious illness with major health repercussions, they are more inclined to take part in screenings. The perceived severity of prostate cancer can be increased by offering information about the possible consequences of leaving the disease left untreated, such as the possibility of more severe disease. Stressing the possible negative effects of cancer of the prostate on one's quality of life, such as those on libido, urological health, and life expectancy in general, can make the disease seem more serious and encourage early detection.

Perceived Benefits:

Making decisions is heavily influenced by the benefits that cancer of the prostate screening is thought to offer. Men have a greater probability to get screened if they think it will help with early cancer detection, better treatment results, and higher survival rates. Clear communication about the advantages of early detection can enhance perceived benefits. Screening can also be framed as a way of gaining reassurance and peace of mind, which can be a significant perceived benefit, particularly for those who are anxious about their health.

Perceived Barriers:

Perceived barriers, such as fear of discomfort, potential side effects, cost, and embarrassment, can deter men from being screened. Addressing these barriers through education, reassurance, and support can help to reduce their impact. For example, explaining the

simplicity of the screening process, providing financial assistance, or offering anonymous or confidential screening options can lower these barriers. It is possible to lower perceived obstacles and promote participation in screening for prostate cancer by busting common misconceptions about the procedure, such as the idea that it is pointless or ineffective.

Cues to Action:

External cues serve as catalysts for people to take procedure in the area of their health. In addition to particular circumstances like knowing someone who has been confirmed to have cancer of the prostate, these can also include efforts to promote public health, community outreach initiatives, and reminders from healthcare professionals. Media campaigns, testimonials from survivors, and discussions within social networks can act as powerful cues to action, encouraging men to consider and pursue prostate cancer screening.

Self-Efficacy:

The term "self-efficacy" describes a person's belief in their own ability to act. If men believe they can manage potential consequences, navigate the medical system, and adhere to the assessment process, they are much more inclined to get screened. Providing clear instructions, support, and resources can help build this confidence; creating supportive environments, such as offering guidance through the screening process or providing access to healthcare professionals who can answer questions and offer reassurance, can enhance self-efficacy.

2.9.4 Health Promotion Model (HPM)

Pender created. In 1982, Nola J. Pender created the Health Promotion Model. The association between the variables that are independent and men's desire to screen for adenocarcinoma of

the prostate can be studied using the Health Promotion Model (HPM), which is a useful theoretical framework. The HPM places a strong emphasis on the elements that allow people to engage in behaviors that promote health, like having access to medical care and having the support of friends and family. The model has been used with medical components to prevent infections, diseases, and injuries. To promote health, nurses should consult with their patients. It has been used to describe risk factors for treatment. To improve their health, nurses should plan to alter their behavior(Tetchi et al., 2020).

Conferring to the HPM, individuals are more probable to take health-promoting activities if they think the advantages outweigh the disadvantages (Mwebembezi et al., 2023b). Men are therefore more likely to get screened for cancer of the prostate when they have access to medical care and receive support from friends and family, as these factors increase the perceived advantages of screening. The HPM is relevant to this study as it aligns with the research objective of determining how facilitators of prostate cancer screening affect the relationship between independent variables and intention to screen among men. The theory provides an accurate framework for understanding how men's access to medical care and social relationships can affect their perceptions of the benefits of detecting cancer of the prostate and, in turn, their decision to undergo screening (Okyere et al., 2023b).

The goal of Nola Pender's Health Promotion Model (HPM) is to identify the components that encourage people to adopt health-promoting behaviors, like screening for cancer of the prostate. The model emphasizes the role of personal experiences, feelings, and social influences in shaping health behaviors. A man’s past experiences with healthcare, including previous screenings or medical tests, can influence his decision to undergo screening for

prostate cancer. Positive past experiences can increase the likelihood of future screening. Conversely, negative past experiences may create barriers (Agide et al., 2018).

If men feel that getting screened for cancer of the prostate will lead to benefits like rapid detection and increased chances of having a successful course of treatment, they are more probable to do so. To increase motivation, health promotion initiatives should make these advantages obvious (Olarewaju et al., 2020c). Identifying and addressing barriers, such as fear of the procedure, potential side effects, cost, or lack of access to healthcare can improve screening uptake. Interventions may include educational campaigns to reduce fear, financial assistance programs, or mobile screening units to reach underserved areas. Confidence in the ability to successfully complete the screening process is crucial. Interventions that provide clear information about what to expect, offer support during the screening process, and make the screening process as simple and accessible as possible can enhance self-efficacy. The positive or negative feelings associated with the screening process can affect the decision to participate. For example, if men perceive screening to be embarrassing or painful, they may avoid it. Efforts to make the screening process more comfortable and less intimidating can improve participation(Olarewaju et al., 2020d).

This theory holds that interaction with others and the impact of friends, family, and medical professionals have a big impact on the health habits of individuals (Atuhe et al., 2023). Men may be encouraged to get screened by their loved ones or reliable medical professionals. Educational initiatives that integrate family members or partners into the decision-making process can take advantage of these interpersonal factors. In addition, Encouraging men to set specific health goals, such as scheduling a screening appointment, can lead to higher follow-through(Atuhe et al., 2023). Health promotion efforts might include tools or programs

that help men plan and commit to screening, such as reminders or support from health care providers.

2.9.4 Theory of planned behavior

This theory, put forth by Ajzen and Fishbein in 1975, holds that behavior is influenced by motives, opinions (opinions about a behavior), and subjective standards (beliefs about the attitudes of others toward a behavior). The theory of planned behavior is a widely recognized and frequently used theoretical framework in the social and behavioral sciences. This model can be applied to investigate the association between the independent and dependent factors of men's intentions to get tested for cancer of the prostate in Kenya. This theory holds that a person's behavior is influenced by their attitude toward their behavior, their subjective standards, and their perception of control over their behavior (Choi & Wan, 2021a).

Three crucial elements are claimed for forecasting the actions of individuals in this theory: personal attitudes. We must consider a person's attitudes if we are to predict their future conduct. For instance, someone is more likely to visit the gym if they have a positive outlook on exercise. Subjective norms: We must consider a person's cultural and social expectations to predict their future behavior. For instance, if someone's culture exalts and celebrates soccer, they may be more inclined to play that sport. Perceived behavioral control: To forecast an individual's subsequent behavior, it is important to determine how much control they feel over their actions and whether they are capable of changing their conduct with effort(Roncancio et al., 2015)To successfully improve compliance with medications, a theory must be able to account for these complex elements. For instance, adherence to prescribed drugs can be affected by multiple variables other than patient-related factors, such as social and economic, therapy-related, and health system-related factors (Roncancio et al., 2015).

A person's evaluation of their actions is known as their perspective toward those actions, and it is predicated on their perceptions of the results of those actions as well as their evaluation of those results. "Subjective norms" describes how a person interprets the social expectation to either engross in or abstain from a specific behavior. Professed behavioral regulation is the idea that an individual has about their ability to execute a behavior (Winarti et al., 2021). Because it provides a clear framework for indulgent how various independent variables, like the circulation of brochures specifically targeted at female partners, a positive framing, and established discussions, may impact the dependent variable of men's desire to screen for cancer of the prostate in Kenya, the theory of planned behavior was relevant to the present investigation.

A person's perceptions of both obstacles and facilitators in detecting prostate cancer can also affect how the interaction between both dependent and independent factors may change, as can the moderating variables of barriers and facilitators(Atuhe et al., 2023). According to this theory, culture significantly influences people's thoughts, feelings, and actions. It also identified six aspects of culture that can be used to compare and contrast various cultures.

The impact of women on men's desire to screen for cancer of the prostate can be successfully understood in relation to this investigation by applying the Theory of Planned Behavior (TPB). The attitudes, subjective norms, and supposed behavioral control of women, who are frequently partners, wives, daughters, or other members of the same family, can greatly impact a man's decision to have a cancer of the prostate screening.

Attitude Towards Screening

Women have the power to significantly impact men's discernments of cancer of the prostate detection screening. Women can assist men in adopting an optimistic mindset toward

screening by having conversations, offering encouragement, and disseminating information about the advantages of early identification. To positively affect their spouse's attitude toward the procedure, a wife or partner could emphasize the value of timely assessment and the possibility of living a life that is healthier and longer. Women who share stories of loved ones who have benefited from early screening or who suffered due to late detection can also impact men's attitudes by providing emotional and personal contexts.

Subjective Norms

Subjective norms are the perceived social pressures to act in certain ways or not. By communicating their standards and needs for their partners' wellness, women have a powerful influence on these norms. If a man perceives that his female partner or other important women in his life expect him to undergo prostate cancer screening, he may feel a stronger obligation to comply. This is especially true in cultures where women play a key role in family health decisions. In many cases, women are considered caregivers and health advocates within families. When they advocate for screening, it can create a social expectation that reinforces their intention to participate in screening.

Perceived Behavioral Control

The concept of believed behavioral control defines a person's self-confidence in their capacity to carry out an action, taking into account any potential obstacles or enablers. Women can influence this by helping reduce perceived barriers to screening. For example, they might help arrange appointments, provide transportation, or offer emotional support, making the process more manageable and less daunting. They might also provide information and reassurance that alleviates fears or misconceptions about the screening process, thereby increasing the man's perceived control over the situation. In cases where logistical or

financial barriers exist, women can encourage men to take advantage of available resources, such as community health programs or insurance coverage, further enhancing perceived behavioral control.

Overall Impact on Intention to Screen

In women, the desire to screen for cancer of the prostate can be significantly increased when they positively impact the three components of the TPB, namely assertiveness, subjective norms, and alleged behavior control. Women help men see screening as necessary and beneficial by developing an optimistic mindset through encouragement and education. Furthermore, women can create a positive social environment through their influence that pushes or persuades men to engage in health-related behaviors like screening.

Furthermore, by assisting with the logistical and emotional aspects of screening, women can help men feel more in control and capable of undergoing the procedure, thus reducing any resistance. Men's health-related behaviors, such as the desire to get screened for cancer of the prostate, are greatly influenced by women. Their function in forming attitudes, upholding subjective norms, and improving perceived behavioral control is clear when viewed through the prism of the Theory. By understanding and leveraging these influences, health interventions can be designed to engage women as key advocates for promoting prostate cancer screening among men, ultimately leading to better health outcomes.

The Theory of Planned Behavior is a relevant framework for understanding how a female partner-led initiative can influence men’s intentions to undergo prostate cancer screening. By positively shaping attitudes, strengthening subjective norms, and increasing perceived behavioral control, female partners can play a significant role in motivating men toward screening. TPB offers a comprehensive lens for developing interventions that leverage

partner influence to promote health behavior change, making it an essential foundation for this study.

2.10 Conceptual framework

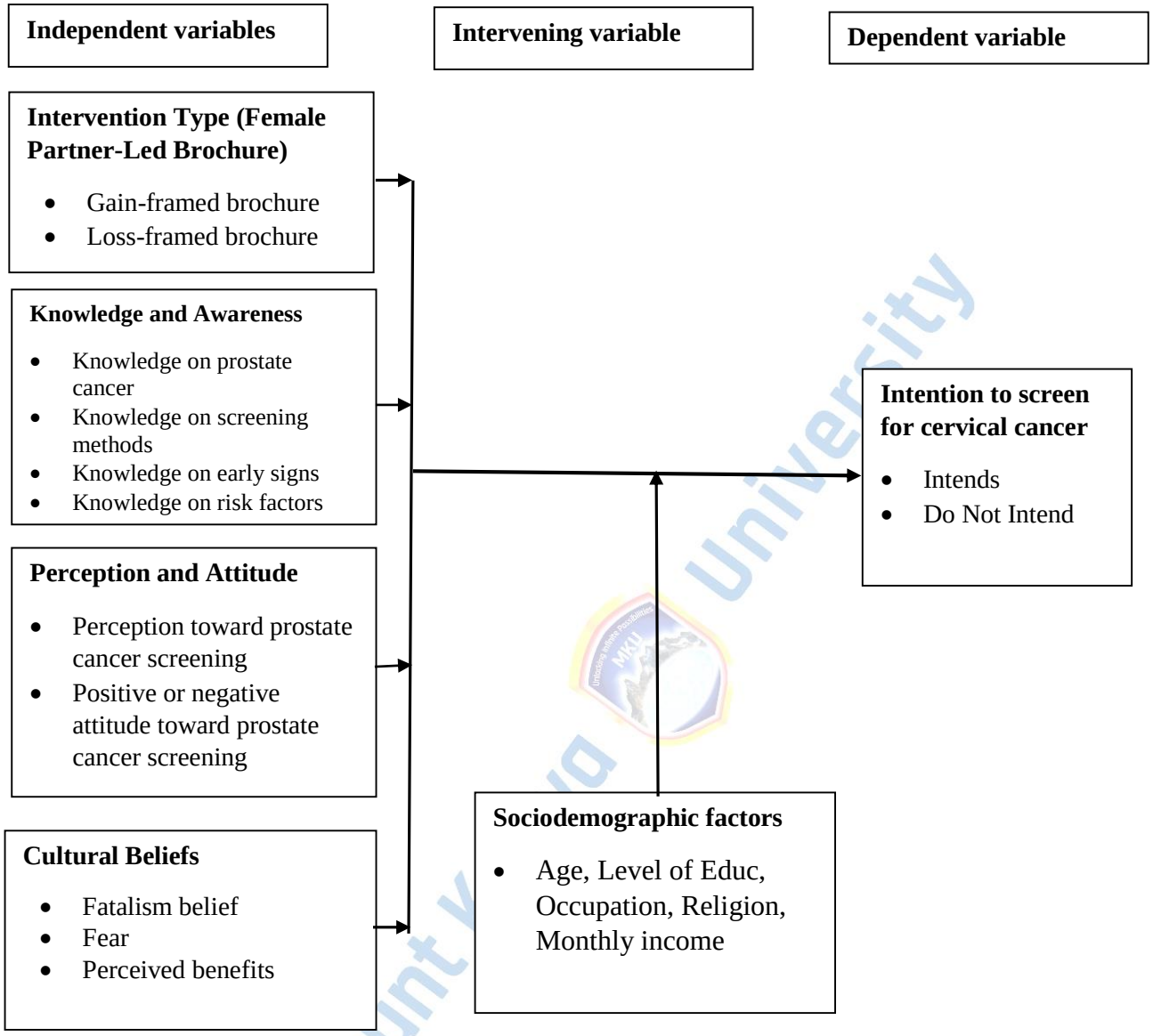

Figure 1 : The conceptual framework adopted from a literature search(Partin et al., 2004).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter presents the study methodology. The chapter starts by giving information on the study design, information on the study population, size of the sample determination, sampling method, data gathering tool, information on the pilot study, and information on the method used for analyzing the data. The chapter ends by providing Information on ethical issues considered in the research process.

3.1 Study Design

The study adopted a randomized controlled trial study design. An *RCT*, or *Randomized Controlled Trial*, is a research design widely regarded as the gold standard for testing the efficacy of interventions. In an RCT, participants are randomly assigned to one of at least two groups: an intervention group (receiving the treatment or intervention) and a control group (not receiving the intervention, or receiving a placebo or alternative treatment). This random assignment minimizes bias and helps ensure that differences in outcomes between groups can be attributed to the intervention rather than other factors. Kiambu county the study site, was purposively selected. this is because the county is among the counties with the lowest prostate cancer screening uptake. According to the Kiambu County Development report, the uptake of prostate cancer is below 5%(KCG, 2018). Moreover, the two study sites used in the study were randomly selected, with a list of sub-county as the sampling frame. Further study sites were randomly allocated into study arms with Githunguri being the intervention site and Limuru the control site.

3.3 Study Area

According to data from the 2019 Kenya population and housing census, Kiambu County is located in the central region and spans a total area of 2543.5 km2, of which 476.3 km2 are covered in forest. Nairobi, Kajiado, and Machakos are to the south, Muranga is to the east, Nyadarua is to the Northwest, and Nakuru is to the west of Kiambu County. According to KNBS (2019a), Kiambu County is located between longitudes 360 and 370 and latitudes 00 and 25 and 10 and 20 south of the equator. There are 60 wards and 12 sub-counties within the county. Kiambu County has 1,623,282 people as of the 2009 Kenya population and housing census; by 2018, that number is expected to rise to 1,942,505. By the end of 2022, the population is expected to reach 2,090,592. Kiambu County is made up of hills, plateaus, and high-elevation plains, and it has a density of 638 people per square kilometer. The region, which is located between 1500 and 1800 meters above sea level, is primarily a tea and dairy zone, though some other activities like the farming of maize, fruits, vegetables, and sheep are also carried out there (KNBS, 2019b).

3.4 Study population

PSA testing is advised by the American Urological Association for high-risk patients between the ages of 40 and 45. Men at low to average risk may start screening between the ages of 45 and 54. Men between the ages of 55 and 69 who are low or average risk may be offered screening every two to four years. Men 75 years of age or older with a PSA <3 ng/mL may have their rescreening interval extended or even discontinued. According to Jain et al. (2023), screening is unlikely to be beneficial for patients with an appropriate life expectancy of less than ten years.

Consequently, this study targeted men aged 40 to 69 years from rural Kiambu County, Kenya, In addition, their female partners were also included as a secondary target population. The

inclusion of female partners was based on evidence that suggests their critical role in promoting health behaviors in their male partners.

3.5 Inclusion and exclusion criteria

3.6.1 Inclusion criteria

1. Men who are residents of Kiambu County for six months and above during the study period.
2. Men aged 40-69 years and living together with a female partner.
3. Men who agreed to sign the informed consent form
4. Female partner living with a men who meets the inclusion criteria above for men in the study

3.6.2 Criteria for Exclusion

1. Extremely sick participants were excluded from the research due to their inability to express themselves.
2. Men who meet the inclusion criteria but do not have a regular female partner.
3. Men who didn't consent to participate in the study were also excluded from the research.

3.7 Sample Size Determination

The Magnani (1997) formula has been recommended as a good method for estimating the sample size when conducting an impact study. Using the formula below, the size of the sample was dogged as follows.

n = $D\ [((Z_\alpha + Z_\beta)^2 * (P_1(1- P_1) + P_2\ (1- P_2))/\ (P_2 - P_1)^2]$

n = least sample desired per survey round.

D = design effect (usually from preceding similar investigation or a default of 2 if none is available)

P_1 = An indicator's estimated level expressed as a percentage at the time of the initial survey or for the area under consideration (or 50% (0.5) if unknown and no comparable study exists)

P_2 = Expected proportion of the indicator of interest at a later time, where P2 - P1 represents the size of the intervention's change in that indicator. The study's projection is 20%, so P2 = 0.70, or (70-50) = 20%

Z_α = The observed change (P2 - P1) must not have happened by chance, according to the Z-score (1.96) that corresponds to 95% degree of confidence ("level of statistical significance" 0.05).

Z_β = the Z-score of 0.84, or 80% statistical power, can be used to be likely to identify any change in size (P2 - P1) that may have occurred.

The assumption is that the treatment led to 20% difference in the tracer indicator. We assume the baseline/control group proportion to be 0.5 implying that $P_1 = 0.5$ and $P_2 = 0.70$

Substituting in the formula

n = $2[((1.96 + 0.84)^2 * 0.3(1 – 0.7) + 0.45 (1 – 0.45))/ (0.45\text{-}0.3)^2]$

n = 2[(6.175*0.46)/0.0225] = 253 subjects per survey. Adding 10% (25) for loss, the total sample size was 278.

278 divided by 3 for the three arms of the study = 93 for each arm of the study.

N/B

n = a minimum number of samples is required for each survey round or contrast group.

D = Design consequence (assumed in the subsequent equations to have the value of 2 by default). **P1** = the first survey's or the control area's predicted level of an indicator expressed

as a percentage **P2** = the anticipated level of the indicator, either for the project area or at some point in the future, such that (P2 - P1) is the size of the desired change's magnitude.

Zα = the Z-score equivalent to the level of statistical significance (0.05) desired to be able to draw the conclusion that an observed change in size (P2 - P1) would not have happened by chance.

Zβ = the z-score that corresponds to the level of assurance desired to be confident of detecting an alteration in size (P2 - P1) if one genuinely occurred (β - statistical power).

3.8 Sampling Techniques

Kiambu was purposively picked based on the uptake of screening services and high PSC-related deaths. Kiambu is among the counties with the lowest prostate cancer screening uptake. According to the Kiambu County development report, the uptake of prostate cancer is below 5%(KCG, 2018). The two study sites were randomly selected, with a list of subcounty as the sampling frame. Further, the sites allocation into study arms was randomly allocated Githunguri being the intervention site and Limuru the control site. At the study sites, participants were randomly selected based on them meeting the inclusion criteria. For this to happen, a list of the households was obtained from the community health officer at the community health used as the sampling frame. Out of the list, a simple random sampling technique was used to identify households.

At the household, couple /couples who met the inclusion criteria were encompassed in the research. Where couples in the household did not meet the inclusion criteria or were absent, they were replaced by their neighbors as long as they met the inclusion criteria.

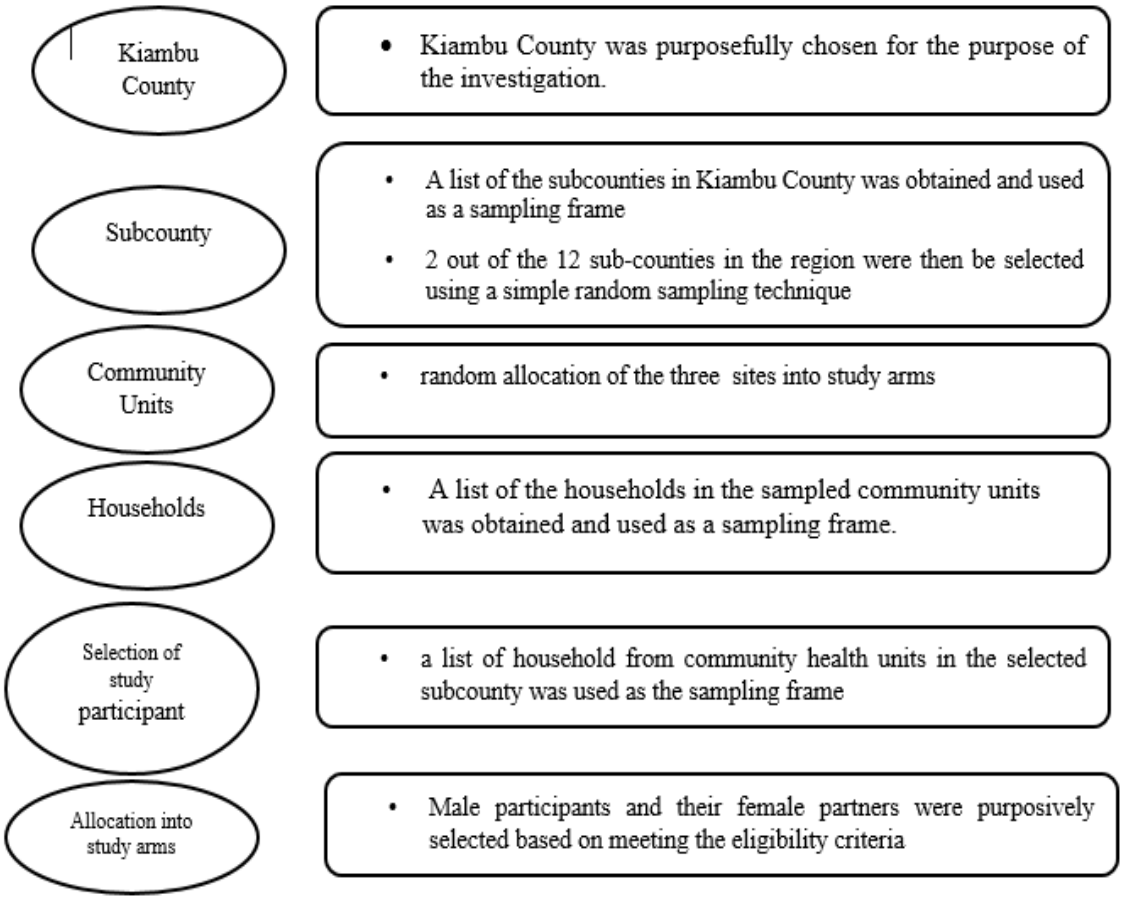

Figure 2: Sampling techniques

3.9 Data Collection Instruments

A structured questionnaire was used. The tool comprised of items on awareness, attitude, and practice on cancer of the prostate screening, items on culture, and screening. Intention to screen for cancer of the prostate was measured using a validated scale such as the Prostate Cancer Screening Decisional Balance Scale (PCS-DBS) (Taylor et al., 2013). This allowed the researchers to assess the efficacy of the different message frames on the men's intent to screen for adenocarcinoma of the prostate and make comparisons between the two groups.

A Likert scale was used to assess knowledge, attitude, and perception in this research and as a result. In regard to knowledge, study respondents who strongly agreed and agreed were

deemed to be knowledgeable and those who strongly disagreed and disagreed were deemed as not knowledgeable, This concept was applicable to both the attitude and perception of the study respondents on the intentions to prostate cancer screening.

3.9.1Study intervention

The intervention involved the use of female partner-specific brochures in different message frames (gain-framed and loss-framed). Female partners in the intervention group received female-specific brochures in different message frames, while those in the control group received brochures with simple 'normal' health education brochures with information on prostate cancer (please see appendix 6). Further female-specific brochures used in the intervention group were framed in either gain or loss frames.

Before the intervention baseline data was collected to determine prostate cancer screening status among the partakers as well as their intent to screen for the disease. After this the intervention was implemented where Female partners in the intervention group received female-specific brochures in different message frame, while the female partner in the control group received brochure with simple 'normal' health education brochure with information on prostate cancer.

After a period of six months, a post-test survey was conducted that collected data that determined the cancer of the prostate screening status among the respondents as well as their intent to screen for the disease.

3.10.1 Validity and Reliability

3.10.1 Validity

To guarantee the validity of data collection tool, a literature review of other studies was done to guide the construction of the tools. Further, experts in the study subject area of health

communication were requested to review the tool. Moreover, an oncologist was asked to critique the tool to ensure it answered the questions on prostate cancer screening. Continuous refinement of the questionnaire was done.

3.10.2 Reliability

The questionnaire was piloted in households in Nakuru County. To see if the survey's findings were consistent after a month, the same instrument was administered to the same respondents. Corrections were made where there were any discrepancies in the responses provided. The tool's internal consistency was confirmed using Cronbach'sAlpha reliability scale. A tool is considered consistent if Cronbach'sAlpha value is equal to or more than 0.7. From this study, an internal consistency value of 0.8 was obtained meaning the data collection tools were okay for the actual data collection phase.

3.11 Analysis of Data and Presentation

SPSS version 29 was employed in descriptive statistics while STATA version 15 was employed for inferential statistics. To measure the effect of the brochure type and message frame on desire to screen for cancer of the prostate, awareness of adenocarcinoma of the prostate, perception, attitude, beliefs, and fear towards cancer of the prostate, data was subjected to a chi-square test. Structural equation modeling was also used to compare the influence of knowledge, attitude, perception, and culture on intention for prostate cancer screening at baseline and end-line. The difference in difference (DID) was also used to measure the overall effect of the female partner-specific gain-framed and loss-framed brochures intervention on the intention to cancer of the prostate screening, awareness of adenocarcinoma of the prostate, perception, attitude, beliefs, and fear towards prostate cancer in the treatment and placebo groups at baseline and end-line. A p-value of ≤ 0.05 was set to

determine the statistical significance. Data generated during the data analysis process is also presented using tables and bar graphs.

3.12 Ethical Consideration

The MKU Institutional and Ethical Review Committee(PHDPH/2021/40657) was consulted in order to obtain ethical clearance. Following approval, the National Commission for Science, Technology, and Innovation (NACOSTI/P/23/29822) was contacted to request a license to collect data. The relevant Kiambu County was also contacted in order to obtain additional authorization. By giving written informed consent, the participants were free to engage in the study, and the confidentiality of the investigation's respondents was protected by withholding any information that would allow the participants' identities to be discovered. Participation in this study was voluntary, with no coercion or undue influence to enroll. Participants were reminded of their right to withdraw from the study at any time without any negative consequences. Participants' personal information, health data, and responses were kept confidential. Data was anonymized or de-identified to protect privacy.

CHAPTER FOUR: RESULTS AND DISCUSSIONS

4.1 Introduction

The results of the research are presented in this section. The chapter begins with presenting data on response rate, social demographic data, findings regarding the impact of different types of brochures on men's intentions to screen for adenocarcinoma of the prostate, findings regarding the impact of female-specific brochures on those intentions, findings regarding the impact of message frames on those intentions, information regarding the type of brochures on men's attitudes toward screening for prostate cancer among those aged 40-69, and findings regarding the cultural beliefs surrounding the type of brochures for women and men aged 40-69. The combined impact of knowledge, attitude, perception, and cultural beliefs on men's intentions to get screened for adenocarcinoma of the prostate between the ages of 40 and 69 concludes the chapter.

4.2 Response rate

At baseline, the response rate was 100%. There was however some missing data in some of the questionnaires which was addressed by substituting the missing data with the mean observation. At the endline, there was an attrition of 3 respondents in the control group, attrition of 2 respondents in the group who intervened using a gain-framed brochure, and attrition of 2 respondents in the group who intervened using loss loss-framed brochure. This resulted in a response rate of 96.8%, in the gain-frame arm intervention group and 97.8% in the loss-framed intervention group. Figure 3 shows the attrition across all experimental groups.

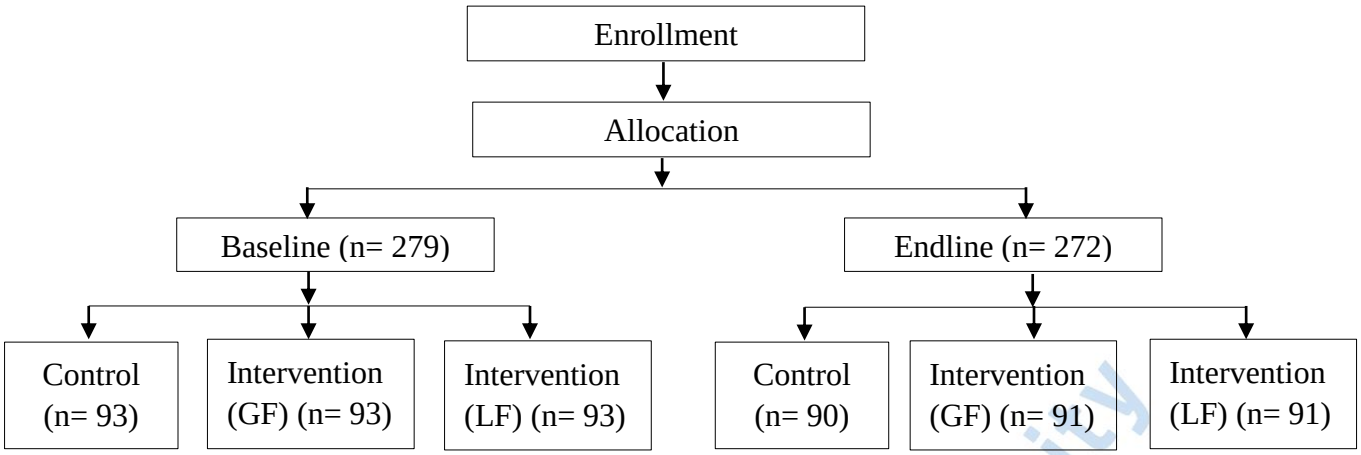

Figure 3: Flow chart of the response rate

4.3 Socio-demographic characteristics

As indicated in Table 1 below, At baseline and end line there was no significant difference in age between the control and intervention groups ($p<0.2$). There was no significant difference in the level of education, religion, occupation and monthly income between the control and intervention groups at baseline and endline ($p>0.15$). It is worth noting that a majority of respondents in the control group at baseline and endline had primary education while a majority of respondents in the intervention groups had secondary education. In regard to religion, all the respondents in the control and intervention groups were Christians. A high number of respondents in the control and intervention groups at baseline and end-line were self-employed. At baseline, the mean monthly income in the control group was Ksh 15707.7 ± 10402.1, and the monthly income in the group intervened using gain-framed brochures was Ksh. 16096.8 ± 15006.7, while monthly income in the group intervened using loss-framed brochures, was Ksh. 16102.2 ± 20975.2. At the endline the mean monthly income in the control group was Ksh 16000 ± 10449.2, monthly income in the group intervened using gain-

framed brochures was Ksh. 16208.8 ± 15150.2 while monthly income in the group intervened using loss-framed brochures was Ksh. 16329.7 ± 21136.9

Table 1: Socio-demographic characteristics of the respondents

	Baseline					Endline				
Variable	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value
	f(%)	f(%)	f(%)			f(%)	f(%)	f(%)		
Age										
40-49 years	45(48.4)	73(78.5)	60(64.5)	19.639	0.001	44(48.9)	71(78.0)	60(65.9)	17.975	0.21
50-59 years	31(33.3)	11(11.8)	24(25.8)			29(32.2)	11(12.1)	22(24.2)		
60-69 years	17(18.3)	9(9.7)	9(9.7)			17(18.9)	9(9.9)	9(9.9)		
Highest level of education										
No formal education	3(3.2)	6(6.5)	5(5.4)	1.786	0.938	3(3.3)	6(6.6)	4(4.4)	1.875	0.931
Primary	44(47.3)	41(44.1)	39(41.9)			42(46.7)	40(44.0)	38(41.8)		
Secondary	43(46.2)	44(47.3)	47(50.5)			42(46.7)	43(47.3)	47(51.6)		
Tertiary	3(3.2)	2(2.2)	2(2.2)			3(3.3)	2(2.2)	2(2.2)		
Religion										
Christian	93(100)	93(100)	93(100)			90(100)	91(100)	91(100)		
Occupation										

Unemployed	40(43.0)	45(48.4)	45(48.4)	0.720	0.698	38(42.2)	43(47.3)	44(48.4)	0.777	0.678
Self employed	53(57.0)	48(51.6)	48(51.6)			52(57.8)	48(52.7)	47(51.6)		
Monthly income										
Mean	15709.7	16096.8	16102.2			16000	16208.8	16329.7		
Standard deviation	10402.1	15006.7	20975.2			10449.2	15150.2	21136.9		
P value	0.982					0.990				

4.4 Intention for Prostate Cancer Screening

Before the intervention baseline data was collected to determine prostate cancer screening status among the partakers as well as their intent to screen for the disease. After this, the intervention was implemented where Female partners in the intervention group received female-specific brochures in different message frames, while the female partner in the control group received a brochure with a simple 'normal' health education brochure with information on prostate cancer. Figure 4 shows the findings in regard to a variation in intention among all the arms of the study.

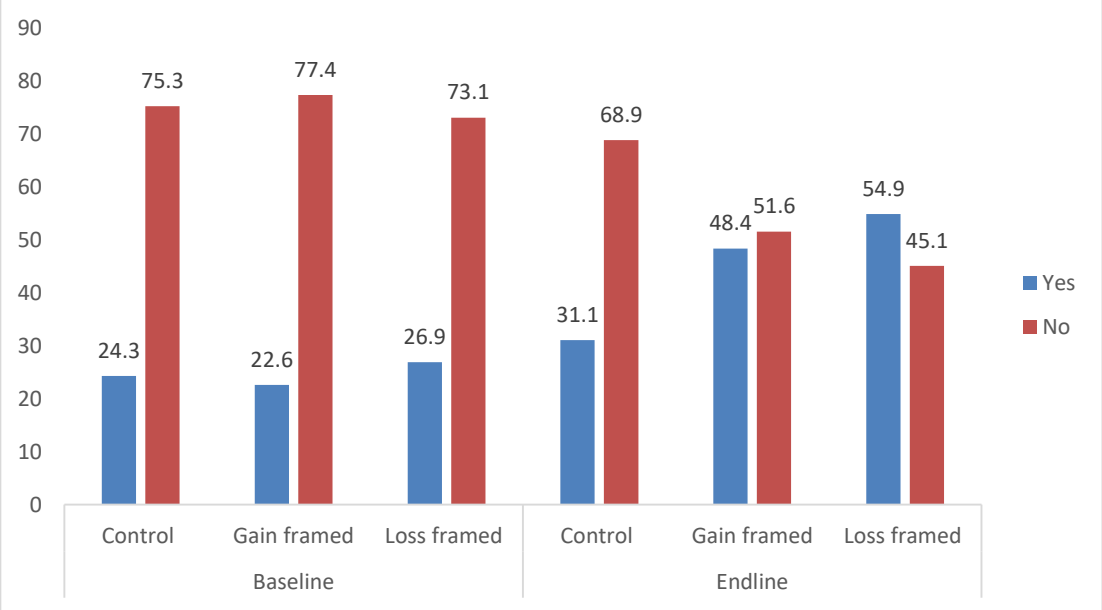

Figure 4: Intention to screen for the cancer of the prostate in control and intervention groups at baseline and end-line

As indicated in Figure 2, At baseline, there was no significant difference in intention to screen for adenocarcinoma of the prostate among the respondents in the control and intervention groups ($\chi 2$ (2, N=279) =0.462, p= 0.794). At the end-line, the findings indicated a significant difference in intention for adenocarcinoma of the prostate screening among respondents in different study arms ($\chi 2$ (2, N=279) =11.068, p= 0.004). Over half (54.9%) of respondents in the group that received loss-framed brochures showed a positive variation in scoring on intention for adenocarcinoma of the prostate screening. Similarly, there was a positive variation (48.4%) in intention to screen for cancer of the prostate among the respondents, close to half (48.4%) in the group receiving gain-framed brochures. In regard to the control group, only close to a third (31.1%) of the respondents had the intention for adenocarcinoma of the prostate screening.

The partner-led loss-framed and gain-framed intervention had a significant influence on the intention of PCS among men with the loss-framed group having considerably higher rates (54.9%) of intention than those in the gain-framed group (48.4%) post-intervention. The results of the present investigation indicate that men were more likely to consider having prostates examined when the message was presented in terms of potential losses (such as the risks of not getting screened) rather than potential gains. The study's conclusions are consistent with behavioral economics' Prospect Theory, which holds that people are typically more driven to avoid losses than to make gains. Loss-framed messages in health communication frequently highlight the dangers of delaying taking preventative measures, which can instill a sense of urgency. The current study's outcomes matched those of a partner-led education intervention that was discovered to greatly raise PCS intention (Teo et al., 2018).

Gain-framed and loss-framed approaches to intervention increased PCS intention similarly, according to a meta-analysis of 16 studies (Ainiwaer et al., 2021). Men's intention to participate in PCS and actual PCS increased significantly in Kiambu County, Kenya, as a result of a study that used a Community Health Worker intervention (Mbugua et al., 2022). Research indicates that the greater men's awareness of prostate cancer, the more likely it is that they will believe they are at risk of adenocarcinoma of the prostate and, consequently, of PCS. Additional data suggests that health message framing is a useful strategy for influencing contextual intention for PCS and health behavior (Xu & Zhao, 2021). Furthermore, a partner-led messaging action increased men's cancer of the prostate screening significantly, according to a US study involving African Americans (Holt et al., 2017).

Intention for cancer of the prostate screening at baseline was comparable to a range of 24%-30% reported while intention at the endline in the intervention groups was considerably high as compared to the intention among Oman men (Muliira et al., 2017a). Intention for PCS at endline was slightly lower than 69.17% reported among men in Hong Kong China the intention for PCS was 69.17% (Choi & Wan, 2021b). A high intention for PCS may consequently result in increased rates of actual cancer of the prostate screening. For instance, according to a US study, the prevalence of adenocarcinoma of the prostate screening is about 62.4% (Ogunsanya et al., 2016). Equally, a Brazilian study reported a considerably high prevalence of PCS of about 41.6%- 63.3% (Carollyne et al., 2019). It is therefore evident that low and middle-income countries need to be addressed.

4.5 Knowledge about prostate cancer

As shown in the following Table 2, While there was a significant difference ($p<0.05$) at the endpoint, there was no significant difference in respondents' general knowledge of cancer of

the prostate at baseline between the control and intervention groups. At the endline, the group that used a gain-frame brochure to intervene had the highest percentage of those surveyed who had a general understanding of cancer of the prostate, followed by the group that used a loss-frame brochure, and the control group had the lowest percentage.

Knowledge on prostate cancer screening methods differed significantly among respondents in the placebo and treatment groups at endline ($P<0.05$). A high number of partakers who had knowledge on adenocarcinoma of the prostate screening methods were in the group intervened using gain framed brochures followed by those in the group intervened using loss-framed brochures while the least were in the control group. Furthermore, there was a significant difference in knowledge on early signs of cancer of the prostate among respondents in the control and treatment groups at endline ($p<0.05$). A high number of respondents who had knowledge on early signs of cancer of the prostate were in the group intervened using loss-framed brochures followed by those in the group intervened using gain framed brochures while the least number was in the control group. Additionally, knowledge on risk aspect of cancer of the prostate differed significantly among respondents in the placebo and treatment groups at endline ($p<0.05$). a high number of respondents who had knowledge on risk factors of cancer of the prostate were in the group intervened using gain-framed brochure followed by those in the group intervened using a loss-framed brochure while the control had the least.

Partner-led loss-framed brochure intervention had slightly more influence on general knowledge on prostate cancer and knowledge on early signs of PC while the gain-framed brochure method had more influence on knowledge on PC screening methods and knowledge on risk factors of PC. The study findings suggest that different aspects of prostate cancer

education may benefit from different framing approaches. Furthermore, the findings reveal that using both framing techniques in different parts of an education campaign could lead to better overall knowledge improvement. These study findings align well with the Extended Parallel Process Model, which suggests that fear appeals (similar to loss-framing) can be effective, but only when coupled with efficacy messages. A Jordanian study reported that interventions that combined brochures, booklets, and verbal information resulted to a significant increase in knowledge on adenocarcinoma of the prostate among men (Saleh, Petro-Nustas, et al., 2020). Similarly, a meta-analysis documented that the use of decision aids significantly enhanced knowledge of adenocarcinoma of the prostate among patients (Ivlev et al., 2019). The findings also indicate that knowledge had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain-framed brochures at the endline. Similarly based on a study done in Zambia knowledge was identified as one of the determinants of intentions of PCS among men (Gift et al., 2020c). Evidence from a meta-analysis suggests that younger men felt that they had little knowledge on adenocarcinoma of the prostate and thus to them screening was irrelevant. On the other hand, men who had a family history of prostate cancer were aware of the effects of PC on health and quality of life and were thus had higher intentions for PCS (James et al., 2017b). The study findings are in line with the integrated behavior model which theorizes that a person requires the necessary knowledge and skills in order to perform a specific behavior (Frosch et al., 2009; Jimbo et al., 2013). Thus our findings demonstrate that intention for PCS among men was influenced by knowledge obtained through the gain and loss-framed interventions. Additionally, according to a Nigerian study, a higher level of education was positively related with a high intention for PCS (Ebuehi & Otumu, 2011).

Table 2: Knowledge about prostate cancer

	Baseline					Endline				
Variable	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value
	f(%)	f(%)	f(%)			f(%)	f(%)	f(%)		
General knowledge on prostate cancer										
Yes	28(30.1)	32(34.4)	40(43.0)	3.491	0.175	35(38.9)	67(73.6)	75(82.4)	42.124	<0.001
No	65(69.9)	61(65.6)	53(57.0)			55(61.1)	24(26.4)	16(17.6)		
Knowledge on PC screening methods										
Yes	5(5.4)	2(2.2)	2(2.2)	2.067	0.356	14(15.6)	28(30.8)	24(26.4)	6.030	0.049
No	88(94.6)	91(97.8)	91(97.8)			76(84.4)	63(69.2)	67(73.6)		
Knowledge on early signs										
Yes	13(14.0)	16(17.2)	14(15.1)	0.385	0.825	33(36.7)	45(49.5)	55(60.4)	10.251	0.006
No	80(86.0)	77(82.8)	79(84.9)			57(63.3)	46(50.5)	36(39.6)		

Knowledge on risk factors										
Yes	15(16.1)	19(20.4)	24(25.8)	2.655	0.265	18(20.0)	41(45.1)	35(38.5)	13.481	0.001
No	78(83.9)	74(79.6)	69(74.2)			72(80.0)	50(54.9)	56(61.5)		

4.6 Perception and attitude towards prostate cancer screening

As indicated in Table 3 below, Attitudes towards cancer of the prostate screening differed significantly among respondents in the placebo and treatment groups at the endline ($p<0.05$). Slightly above a half of respondents (52.7%) in the group intervened using gain-framed brochures had a positive attitude towards cancer of the prostate screening, and close to a half (46.2%) of respondents in the group intervened using loss-framed brochures had a positive attitude towards cancer of the prostate screening while in the control group, only a fifth of the partakers had a positive attitude towards cancer of the prostate screening at endline.

The partner-led gain-framed and loss-framed brochure intervention had a significant influence on attitude towards PCS whereby the rates of positive attitude increased by 40% in the gain-framed intervention group and with 25% in the loss-framed group at endline. Gain-framed messages might have been more effective by focusing on the benefits of screening, potentially reducing anxiety or fear associated with cancer screening. The effectiveness of gain-framing could suggest that for PCS, emphasizing positive outcomes is more persuasive than highlighting potential losses. Similarly, a study done among African American reported that interventions that used spouses, testimonies from other patients, and community and church organizations significantly increased positive attitudes toward PCS among men (Nesbitt, 2016). A Chinese study reported that Gain framed was more effective in increasing men's attitudes towards breast cancer screening (H. J. Kim, 2010). Equally a Japanese study reported that private gain-framed messaging was found to be effective in enhancing positive attitude towards social participation among the elderly (Murayama et al., 2023). Other studies have also concluded that gain-framed messaging is slightly more effective in increasing attitudes towards skin and breast screening as compared to loss-framed messaging (Keefe &

Jensen, 2007, 2009). A Kenyan study on media messaging resulted to a significant increase in men's attitudes toward cancer of the prostate screening (Ndung'u, 2022). Interestingly a meta-analysis documented that both gain-framed and loss-framed messaging had similar influence on attitudes towards cancer screening. Further, the same study concluded that gain-framed messaging was more effective in encouraging prevention behaviors (Gallagher et al., 2012).

Evidence suggests that a positive attitude towards PCS screening is an enabler of cancer screening. Men's attitudes play a significant role in their health behaviors. If someone believes that screening is beneficial, important, or worthwhile, they are more inclined to actually go through with the screening process. For instance, a meta-analysis revealed that the idea that early detection can enhance cancer survival motivated men to undergo PCS (James et al., 2017b). Similarly, a Kenyan study documented that was directly associated with the intention of PCS (Kinyao & Kishoyian, 2018a). A study conducted in the US concluded that improving public attitudes towards PCS is an important element in public health campaigns that aim at enhancing prostate cancer screening (Schoenborn et al., 2019).

There was no significant difference in perception towards adenocarcinoma of the prostate screening among respondents in the control and intervention groups at baseline and endline ($p<0.05$). Results indicate that perception had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain-framed brochures at endline. The study findings indicate that loss-framed messages appear to have strengthened the link between perception and intention more effectively than gain-framed messages. The findings were aligned with aspects of the Integrated Behavior Model, highlighting the complex interplay

between perceptions, message framing, and behavioral intentions. Similarly based on a study done in Turkey a web-assisted intervention was shown to significantly increase perception towards the intention of PCS and actual PCS (Çap & Gözüm, 2012). Equally according to a Lebanese study perceived danger of prostate cancer was cited as one of the determinants of intention for PCS. Evidence suggests that men have a negative perception of PCS due to the perception of digital rectal examination as unflattering and also the perception of PC not being a serious disease (Hejase et al., 2024). Additionally, according to a US study men aged 18-40 years who perceived their health as fair were more likely to have intention for PCS as compared to those who perceived their health status as excellent (Ogunsanya, Brown, Odedina, Jamie, et al., 2017). Further evidence shows that the perception of good health may be an index or a determinant of men engaging in preventive health practices such as screening for cancer of the prostate. Equally, an Oman study cited that key determinants of intention of PCS are the perceived threat of the illness and perceived general body health (Muliira et al., 2017b).

Table 3: Respondents perception and attitude towards prostate cancer screening

	Baseline					Endline				
Variable	control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value	control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value
	f(%)	f(%)	f(%)			f(%)	f(%)	f(%)		
Perception										
Positive	43(46.2)	31(33.3)	32(34.4)	4.047	0.132	46(51.1)	55(60.4)	46(50.4)	2.258	0.323
Negative	50(53.8)	62(66.7)	61(65.6)			44(48.9)	36(39.6)	45(49.5)		
Attitude										
Positive	10(10.8)	12(12.9)	20(21.5)	4.709	0.095	18(20.0)	48(52.7)	42(46.2)	24.155	<0.001
Negative	83(89.2)	81(87.1)	73(78.5)			72(80.0)	43(47.3)	49(53.8)		

4.7 Cultural beliefs towards prostate cancer screening

As indicated in Table 4 below, there was a significant difference in fatalism belief among respondents in the control and treatment groups at baseline and endline ($p<0.05$). At baseline 84.9% of respondents in the control group had fatalism belief, 77.4% in the group intervened using loss framed had fatalism belief and 65.6% in the group intervened using gain framed brochure had fatalism belief. At endline there was a significant decrease in the number of respondents who had fatalism belief whereby 23.1% and 13.2% of the respondents in the groups' intervened using gain framed and loss framed brochures had fatalism belief respectively. The partner led gain framed and loss framed intervention resulted to a significant decline in fatalism belief and fear as well as a significant increase in perceived benefits of PCS. The decrease in fatalism belief was more in the group intervened using gain framed messaging. The results suggests that Gain-framed messages seem to be particularly effective in addressing psychological barriers like fatalism, which can be deeply ingrained and difficult to change. Similarly, a Kenyan study documented that a public health intervention resulted to a significant decline in fatalism belief among men (Mbugua, 2022a). Evidence suggests that fatalism belief is associated with lack of knowledge and negative outcome of PCS. Therefore as revealed by the study provision of knowledge through the gain framed and loss framed bronchures may have significantly influenced the significant decline in fatalism belief. Further evidence indicates that fatalism belief can be overcomed by public health education of men at risk and timely diagnosis of cancer of the prostate (Moreno et al., 2019a). A Kenyan study has cited fatalism belief as a key barrier to adenocarcinoma of the prostate screening and thus addressing it is crucial in improving cancer of the prostate treatment outcomes (Wachira, Meng'anyi, & Ruth, 2018). Additionally according to a US study conducted among the Hispanic community study lower cancer fatalism was related

with increased adherence to prostate, breast and colorectal cancer screening (Moreno et al., 2019b).

Perceived benefits towards cancer of the prostate screening differed significantly among respondents in the control and intervention groups at endline ($p<0.05$). Respondents in the group intervened using gain framed brochures had higher perceived benefits towards prostate cancer screening followed by the group intervened using loss framed brochures while respondents in the control group had the least. The study results indicate that increase in perceived benefits was more in the group intervened using gain framed messaging. By increasing perceived benefits, gain-framed messages likely enhanced motivation to adopt PCS. Similarly based on a study conducted in the US the use of video and printed messages as an intervention resulted to a significant increase in perception of benefits of PCS (Saver et al., 2017). The increased perception of benefits may further result to increased rates of PCS. For instance increase in perception of cancer survival rate resulted to a 23% and 36% increase in breast and cervical cancer screening among women of reproductive age. The same study concluded that addressing misconceptions surrounding cancer survival may significantly enhance cancer screening (Bilger et al., 2020). Evidence suggests that presentation of risk data on perceived risk of cancer of the prostate mortality may profoundly affect patient's ability to deduce and utilize the data effectively. For instance, in a study relative and absolute risk data resulted to a similar change on perception of risk of PC mortality (Koo et al., 2017).

Fear towards cancer of the prostate screening differed significantly among respondents in the placebo and treatment groups at endline ($p<0.05$). At endline there was a significant reduction in fear towards cancer of the prostate screening whereby respondents in the group intervened

using loss framed brochure had the least fear as compared to the group intervened using loss framed brochure and the control groups. Decrease in fear towards prostate cancer screening was more in the group intervened using loss framed messaging. The results of this resarch could indicate that addressing potential negative outcomes directly may help alleviate anxiety about screening. Furthermore, the effectiveness of loss-framed messages in this context might be explained by theories like Prospect Theory, which suggests people are more inspired to avoid losses than to acquire gains. Evidence suggests that the loss framed messaging may generate fear arousal and thus impact on health behaviour. For instance, in a study done among young adults in the US loss framed messaging was found to be very effective in reducing the intention of having sex with high risk partners (Macapagal et al., 2017). Interestingly a Kenyan study documented that gain and loss framed intervention did not have an effect on fear towards PCS (Mbugua, 2022b). Fear has been associated with non-participation in PCS. Fear is normally perpetuated by multiple sources of information regarding cancer of the prostate such as from family members, friends, media, and doctors among others which are unstructured (Makado et al., 2015). Therefore, overcoming fear via the partner led loss framed and gain framed messaging may be a potential enabler of PCS.

Table 4:Cultural beliefs towards prostate cancer screening

	Baseline					Endline				
Variable	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value	Control	Intervention (gain framed)	Intervention (loss framed)	$\chi 2$	P value
	f(%)	f(%)	f(%)			f(%)	f(%)	f(%)		
Fatalism belief										
Yes	79(84.9)	61(65.6)	72(77.4)	9.703	0.008	68(75.6)	21(23.1)	12(13.2)	86.971	<0.001
No	14(15.1)	32(34.4)	21(22.6)			22(24.4)	70(76.9)	79(86.8)		
Perceived benefits										
Yes	16(17.2)	17(18.3)	27(29.0)	4.714	0.095	31(34.4)	70(76.9)	54(59.3)	33.619	<0.001
No	77(82.8)	76(81.7)	66(71.0)			59(65.6)	21(23.1)	37(40.7)		
Fear										
Yes	67(72.0)	70(75.3)	72(77.4)	0.725	0.696	44(48.9)	15(16.5)	10(11.0)	40.031	<0.001
No	26(28.0)	23(24.7)	21(22.6)			46(51.1)	76(83.5)	81(89.0)		

4.8 Factors Influencing Intention for PCS

4.8.1 Structural Equation Model

As indicated in Tables 5 and 6 below, At baseline, the results indicated that knowledge had a significant influence on intention for cancer of the prostate screening in the placebo and treatment groups ($p<0.001$). The culture was also found to have a significant negative influence on the intention for cancer of the prostate screening in the control group ($\beta = -0.195$, $t = 1.520$, $p = 0.044$) and a positive influence in the group intervened using loss framed bronchure ($\beta = -0.167$, $t = 1.530$, $p = 0.043$). Additionally, perception had a positive significant influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss framed brochures.

Table 5: Direct relationship between independent and dependent variable at baseline

	Control			Intervention (Gain framed)			Intervention (Loss framed)		
Hypothesis	β	t statistic	P value	β	t statistic	P value	β	t statistic	P value
Knowledge>Intention	0.514	5.829	<0.001	0.568	5.777	<0.001	0.370	3.661	<0.001
Perception> Intention	0.026	0.284	0.388	0.049	0.595	0.276	0.188	1.803	0.036
Attitude>intention	-0.064	0.731	0.232	-0.009	0.119	0.453	-0.139	1.498	0.067
Culture>intention	-0.195	1.520	0.044	0.139	1.141	0.127	0.167	1.530	0.043

At endline, knowledge and perception were found to have a significant negative influence on intention for prostate cancer screening among the respondents in the control group ($\beta = -0.031$, $t = 0.192$, $p = 0.012$, $\beta = -0.054$, $t = 1.401$, $p = 0.002$).

Table 6: Direct relationship between independent and dependent variable at endline

	Control			Intervention (Gain framed)			Intervention (Loss framed)		
Hypothesis	β	t statistic	P value	β	t statistic	P value	β	t statistic	P value
Knowledge>Intention	-0.031	0.192	0.012	-0.202	0.654	0.427	0.184	0.725	0.234
Perception> Intention	-0.054	0.401	0.002	-0.168	0.291	0.091	-0.071	0.695	0.243
Attitude>intention	-0.202	2.254	0.424	-0.141	0.528	0.239	-0.139	1.463	0.072
Culture>intention	-0.054	2.950	0.344	-0.181	0.702	0.343	-0.149	0.725	0.234

4.8.2 Multigroup analysis

As provided in Table 7,In multigroup analysis we checked for the variation between the placebo and treatment groups in regards to the effect of knowledge, attitude, perception and culture on intention for prostate cancer screening at baseline and endline. At baseline, there were no differences in the influence of knowledge, attitude, perception, and culture on intention for prostate cancer screening between the control and the intervention groups.

At the endline knowledge had more significant influence on the intention for cancer of the prostate screening in the control group as compared to the group intervened using gain framed brochure. The results also indicate that knowledge had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss framed brochure as equated to the group intervened using gain framed brochures. Perception was found to have a more significant influence on the intention for cancer of the prostate screening in the control group as equated to the group intervened using gain framed brochures. Path coefficients also indicate that perception had more influence on the intent for

cancer of the prostate screening among respondents in the group intervened using loss framed brochure as compared to the group intervened using gain framed brochures at endline. Similarly, culture was found to have a more significant influence on the intention for cancer of the prostate screening in the control group as equated to the group intervened using gain framed brochures. Path coefficients also indicate that culture had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss framed brochure as compared to the group intervened using gain framed brochures. Equally, culture was found to have more significant influence on the intent for prostate cancer screening in the control group as equated to the group intervened using gain framed brochure. The culture was also found to have more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss framed brochure as compared to the group intervened using gain framed brochures.

Table 7: Multi-group analysis

	Baseline		Endline	
	β	P value	β	P value
Knowledge -> intention				
Control- Intervention(Gain Framed)	-0.055	0.338	0.171	<0.001
Control- Intervention(Loss Framed)	0.143	0.144	-0.215	0.261
Intervention (GF)- Intervention (LF)	0.198	0.081	-0.386	<0.001
Perception> intention				
Control- Intervention(Gain Framed)	-0.022	0.428	0.114	<0.001
Control- Intervention(Loss Framed)	-0.162	0.123	0.017	0.462
Intervention (GF)- Intervention (LF)	-0.140	0.147	-0.097	<0.001
Attitude -> intention				
Control- Intervention(Gain Framed)	-0.055	0.312	-0.062	<0.001
Control- Intervention(Loss Framed)	0.075	0.278	-0.063	0.315
Intervention (GF)- Intervention (LF)	0.130	0.135	-0.002	<0.001
Culture -> intention				
Control- Intervention(Gain Framed)	-0.335	0.059	-0.218	<0.001
Control- Intervention(Loss Framed)	-0.363	0.043	-0.251	0.154
Intervention (GF)- Intervention (LF)	-0.028	0.440	-0.033	<0.001

4.8.3 Follow-up comparison between groups post-intervention

As indicated in Table 8 below, The intervention groups had a significantly higher mean difference in difference in knowledge about cancer of the prostate than the placebo group with the group intervened using gain-framed and loss-framed brochures having a mean DID of 4.989 (3.561 – 6.418) and 5.264(3.804 – 6.724) respectively. The increase in knowledge was more in the group intervened using loss-framed brochures. Intention for cancer of the prostate screening, perception, and attitude towards adenocarcinoma of the prostate screening and attitude amplified significantly in the treatment groups as compared to the placebo groups. Fatalism belief reduced significantly in the intervention groups intervened using gain framed and loss framed brochures as compared to the placebo group as indicated by a mean DID of -2.376 (-2.988 - -1.765) and -2.774(-3.385 - -2.163). Furthermore, there was a significant increase in perceived benefits among respondents in the intervention groups as compared to the control. The increase in perceived benefits was more in the group intervened using gain framed brochures. Additionally, there was a noteworthy decrease in fear towards cancer of the prostate screening among respondents in the treatment groups as compared to those in the placebo group. The decrease in fear was more in the group intervened using loss framed brochures.

Table 8: Mean difference in difference analysis

Variable	Mean difference in difference	Std error	T statistics	Sig.	95% CI	
Knowledge					Lower	Upper
Control	Reference					
GF	4.989	0.727	6.860	<0.001	3.561	6.418
LF	5.264	0.743	7.083	<0.001	3.804	6.724
Intention						
Control	Reference					
GF	0.935	0.190	4.917	<0.001	0.562	1.309
LF	0.484	0.190	2.543	0.011	0.110	0.858
Perception						
Control	Reference					
GF	6.667	1.007	6.620	<0.001	4.688	8.645
LF	2.194	1.007	2.178	0.030	0.215	4.172
Attitude						
Control	Reference					
GF	4.720	1.165	4.053	<0.001	2.433	7.008
LF	5.237	1.165	4.496	<0.001	2.949	7.524
Fatalism belief						
Control	Reference					
GF	-2.376	0.311	-0.358	<0.001	-2.988	-1.765
LF	-2.774	0.311	-0.418	<0.001	-3.385	-2.163
Perceived benefits						
Control	Reference					
GF	2.613	0.324	8.066	<0.001	1.977	3.249

LF	1.269	0.324	3.917	<0.001	0.632	1.905
Fear						
Control	Reference					
GF	-2.484	0.320	-7.768	<0.001	-3.112	-1.856
LF	-2.839	0.320	-8.878	<0.001	-3.467	-2.211

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1Introduction

This section provides a summary of the study, conclusion, and recommendations of the research.

5.2 Summary

Regarding effects of brochure type on intention to screen for cancer of the prostate among men aged 40-69 years in rural Kiambu, Kenya. The study found that-the female specific brochure that carried a message in either loss-framed or gain-framed intervention had a significant influence on the intention of PCS among men. The findings were that respondents with female partner receiving loss-framed brochure had considerably higher positive variation on intention to screen for cancer of the prostate compared to respondents with female partner receiving ordinary brochure.

In regard to the effects of brochure message frame on knowledge and awareness on cancer of the prostate among the respondents. the study found that at baseline, there was no significant difference in general knowledge on adenocarcinoma of the prostate, among respondents in the placebo and treatment groups while at endline there was a significant difference ($p<0.05$). At the end line, a high number of respondents who had general knowledge on cancer of the prostate were those in the group intervened using loss-framed, followed by those in the group intervened using gain gain-frame brochure while the least was in the control. Knowledge on cancer of the prostate screening methods differed significantly among respondents in the control and treatment groups at the endline ($P<0.05$). There was a significant difference in knowledge on early signs of cancer of the prostate among respondents in the control and intervention groups at endline ($p<0.05$). Knowledge on risk

factors of cancer of the prostate differed significantly among respondents in the placebo and treatment groups at the end line ($p<0.05$). A high number of respondents who had knowledge on risk factors of prostate cancer were in the group intervened using a gain-framed brochure followed by those in the group intervened using a loss-framed brochure while the control had the least.

Further in regard to effects of female partner-led gain-framed and loss-framed brochures method on perception and attitude towards cancer of the prostate screening among men aged 40-69 years in rural Kiambu, Kenya, the study findings indicate that attitudes towards prostate cancer screening differed significantly among respondents in the control and intervention groups at endline ($p<0.05$). Slightly above a half of respondents (52.7%) in the group intervened using gain-framed brochures had a positive attitude towards prostate cancer screening, close to a half (46.2%) of respondents in the group intervened using loss framed brochures had a positive attitude towards adenocarcinoma of the prostate screening, while in the placebo group, only a fifth of the respondents had a positive attitude towards cancer of the prostate screening at endline.

There was no significant difference in perception towards cancer of the prostate screening among respondents in the placebo and treatment groups at baseline and end line ($p<0.05$). Results indicate that perception had more influence on the intention for adenocarcinoma of the prostate screening among respondents in the group intervened using loss-framed brochures as compared to the group intervened using gain-framed brochures at the endline

Moreover, in regard to the effects of female partner-led gain-framed and loss-framed brochure methods on cultural beliefs towards adenocarcinoma of the prostate screening among men aged 40-69 years in rural Kiambu, Kenya, the study found that there was a

significant difference in fatalism belief among respondents in the placebo and treatment groups at baseline and end line ($p<0.05$). At baseline 84.9% of respondents in the placebo group had fatalism belief, 77.4% in the group intervened using loss-framed had fatalism belief and 65.6% in the group intervened using gain-framed brochure had a fatalism belief. At the endline there was a significant reduction in the number of respondents who had fatalism belief whereby 23.1% and 13.2% of the respondents in the groups' intervened using gain framed and loss framed brochures had fatalism beliefs respectively. The partner-led gain framed and loss framed intervention resulted to a significant decline in fatalism belief and fear as well as a significant increase in perceived benefits of PCS.

Finally, in regard to the combined effect of knowledge, attitude, perception, and cultural beliefs on the intention of cancer of the prostate screening among men aged 40-69 years in rural Kiambu, Kenya, the study found that at baseline, there were no differences in the influence of knowledge, attitude, perception, and culture on the intention for cancer of the prostate screening between the placebo and the treatment groups. The results also indicate that knowledge had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain-framed brochures. Path coefficients also indicate that perception had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain-framed brochures at endline. Path coefficients also indicate that culture had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain-framed brochures.

5.3 Conclusion

Regarding the effects of female partner-led gain-framed and loss-framed brochures method on intention to screen for cancer of the prostate among men aged 40-69 years in rural Kiambu, Kenya, the research found that female-specific brochure in loss-frame resulted to a considerably more increase in intention for PCS as compared to the gain-framed messaging. The study concluded that the use of loss framed messages on brochure is more effective in promoting PCS screening.

Regarding the effects of female partner-led gain-framed and loss-framed brochure methods on knowledge and awareness about cancer of the prostate among men aged 40-69 years in rural Kiambu, Kenya, the partner-led loss-framed brochure intervention had slightly more influence on general knowledge of cancer of the prostate and knowledge on early signs of PC while the gain-framed brochure method had a more influence on knowledge on PC screening methods and knowledge on risk factors of PC.

Regarding the effects of female partner-led gain-framed and loss-framed brochures method on perception and attitude towards cancer of the prostate screening among men aged 40-69 years in rural Kiambu, Kenya, the partner-led gain-framed and loss-framed brochure intervention had a significant influence on attitude towards PCS whereby the rates of positive attitude increased by 40% in the gain-framed intervention group and with 25% in the loss-framed group at endline, while perception had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochures as compared to the group intervened using gain-framed brochures at the endline.

Regarding effects of female partner-led gain-framed and loss-framed brochures method on cultural beliefs towards cancer of the prostate screening among men aged 40-69 years in rural

Kiambu, Kenya. The partner-led gain-framed and loss-framed intervention resulted to a significant decline in fatalism belief and fear as well as a significant increase in perceived benefits of PCS. The decrease in fatalism belief was more in the group intervened using gain-framed messaging. The results suggest that Gain-framed messages seem to be particularly effective in addressing psychological barriers like fatalism, which can be deeply ingrained and difficult to change.

Finally in regard to the combined effect of knowledge, attitude, perception, and cultural beliefs on the intention of cancer of the prostate screening among men aged 40-69 years in rural Kiambu, Kenya. At the endline knowledge had a more significant influence on the intention for cancer of the prostate screening in the control group as compared to the group intervened using gain framed brochure. Perception had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss framed brochure as compared to the group intervened using gain framed brochures at endline. Culture had more influence on the intention for cancer of the prostate screening among respondents in the group intervened using loss-framed brochure as compared to the group intervened using gain framed brochures. In conclusion, loss-framed brochures were found to be effective as compared to gain-framed brochure messages.

5.4 Recommendations

5.4.1 Recommendations from the study

1 The Ministry of Health and other relevant stakeholders should use gain-framed messages for individuals or groups who are generally health-conscious or who respond positively to preventive measures. These messages should emphasize the benefits of screening, such as early detection leading to better treatment outcomes and prolonged life.

2 The Ministry of Health and other relevant stakeholders w should make use of loss-framed messages for individuals who are more motivated by avoiding risks or negative outcomes. These messages should emphasize the potential consequences of not getting screened, such as the risk of advanced cancer that is harder to treat.

3 The Ministry of Health and other relevant stakeholders should embrace using gain-framed messages to foster a positive attitude toward cancer of the prostate screening by highlighting the benefits of early detection, such as better treatment outcomes, peace of mind, and improved quality of life. A positive attitude developed through gain-framed messages can lead to a stronger intention to undergo screening. When men believe that screening will help them avoid future health issues and lead to better outcomes, they are more likely to intend to get screened.

4 The Ministry of Health and other relevant stakeholders should embrace using Loss-framed messages to create a sense of urgency or fear by focusing on the potential consequences of failing to screen, such as the risk of late detection and worse health outcomes. This can result in a more cautious or defensive attitude toward screening. When loss-framed messages successfully evoke concern about the consequences of not screening, they can lead to a stronger intention to participate in screening as a way to avoid those negative outcomes.

5 The Ministry of Health and other relevant stakeholders should embrace using Loss-framed messages focusing on the potential negative outcomes of not getting screened, such as advanced cancer, pain, and the impact on the family. This approach can be effective in cultures where fear of illness or concern for family well-being is a strong motivator.

6 The Ministry of Health and other relevant stakeholders should upscale of partner-led intervention in other countries to enhance prostate cancer screening among men.

5.4.2 Recommendation for further study

The study recommends an intervention study to assess the Effectiveness of a Community Health Worker-Led Intervention toward enhancing cancer of the prostate screening among men as the government is putting more effort into preventive healthcare services by use of community healthcare workers.

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APPENDICES

Appendix 1: Informed Consent

I'm Peterson Kariuki, a Ph.D. candidate at Mount Kenya University, and I'm currently working on a study on how female partners can lead initiatives to encourage men in Kiambu County, Kenya, to screen for cancer of the prostate.

Steps that must be taken

You consent, by getting involved with this investigation, to my asking you about and gauging your willingness to undergo cancer of the prostate cancer. I'll use the data I learn from you to complete a questionnaire. You have the choice whether or not to partake in this investigation. Please be aware that partaking in the study is entirely optional. You're welcome to inquire about the investigation at any time.

You are free to turn down any question and end an interview whenever you want. Additionally, you are permitted to leave the investigation whenever you want without it having any bearing on the services you receive from the law enforcement or any other entity in the present or in the future.

Discomforts and risks

Some questions may be too peculiar or may make you feel uncomfortable or embarrassed. You may decide on nor to reply to the questions or end the interview when uncomfortable. Due to the training period, selected study participants may experience disruptions to their daily schedule; however, training will be conducted on holidays, weekends, and other free time to ensure that they may continue working as scheduled.

Benefits

This study will add to the development of better adenocarcinoma of the prostate screening plans in relation to Kenya's adenocarcinoma of the prostate screening recommendations. Additionally, by directing the development of plans that are considerate of the needs of service providers in the sector, it will aid in improving coverage of cancer of the prostate detection among men in these countries.

You always have the option to decline the study's invitation to take part, and you have the right to refuse to answer any inquiries that make you feel uneasy. I'll give you more information if you need it or if something is unclear.

Confidentiality

The examinations and interviews will be held on your property in a discreet setting. The questionnaire won't have a record of your name. For security, Mount Kenya University will retain the questionnaires in a secured cabinet. There will be no disclosure of any personal information.

For further enquires

Peterson Kariuki, my supervisors, and Mount Kenya University's Institutional of Ethics and Review Committee can all be reached at +254715517221 or petersonpkk@gmail.com, respectively.

Partaker Statement

I am aware of the details surrounding my engagement in the research investigation that were previously mentioned. I had the opportunity to ask questions, and the responses I got were satisfactory. I voluntarily agree to participate in this inquiry. I acknowledge that my data will be kept private and that I am free to leave the research whenever I want. I am aware that if I decide not to partake in the investigation, I will still receive the same public health services and that my decision will not affect the services I will receive in the future from the health offices.Participant's initials ……

_____

Signature or Thumbprint

Investigator's statement

The volunteer has been informed of the procedures to be followed in the investigation as well as the risks and advantages involved by me, the undersigned, in a language that the volunteer can comprehend.

Interviewer's name:.....

Interviewer signature.....Date.....

Appendix 2: Questionnaires for male respondents

Section A: Social Demographic Characteristics

Instruction: Kindly tick the box that suits your response

Q1.What is your age;

1. 40-49 [ ]
2. 50-59 [ ]
3. 60-69 [ ]

Q2.What is the uppermost level of schooling that you have attained

1. No formal education [ ]
2. Primary school education [ ]
3. Secondary school education [ ]
4. Tertiary school education [ ]

Q3. What is your religion

1. Christianity [ ]
2. Muslim [ ]
3. Hindu [ ]
4. Pagan [ ]

Q4. On average how much do you earn in a month

…….

Q5. What is your profession?

1. Unemployed [ ]
2. Self-employed [ ]
3. Employed [ ]

Section B: Intention to Screen for Prostate Cancer

On a 1. How likely are you, on a scale of 1 to 5, where 5 is "very likely" and 1 is "not at all likely," to have a prostate test for cancer in the upcoming half-year?

Response	Likelihood of Undergoing Prostate Cancer Screening in the Next 6 Months
1	Not at all likely
2	Unlikely
3	Neutral
4	Likely
5	Very likely

What would make you to undergo prostate cancer screening

1. When recommended by a doctor [ ]
2. Individual volution [ ]

Section C: Knowledge and Awareness of Prostate Cancer

Have you heard about p adenocarcinoma of the prostate ?

1. Yes [ ]
2. No [ ]

Where or how have you learned about adenocarcinoma of the prostate?

1) Mass media [ ]
2) Hospital [ ]
3) Community health workers [ ]
4) Family/friends [ ]
5) Any other [ ]

Do you believe that adenocarcinoma of the prostate is a common illness ?

1. Yes [ ]
2. No [ ]

Do you believe that adenocarcinoma of the prostate is a serious illness?

1. Yes [ ]
2. No [ ]

Do you know anyone who is suffering from Prostate Cancer today?

1. Yes[ ]

2. No[ ]

Have you heard/ do you know of adenocarcinoma of the prostate screening

1. Yes [ ]
2. No [ ]

Do you know the symptoms of adenocarcinoma of the prostate?

1. Yes[ ]
2. No [ ]

2. If yes in qn 7 , Are the following symptoms of cancer of the prostate?

	Early signs of cancer of the prostate	Yes	No
1.	Frequent urination		
2.	Difficulty starting or stopping urination		
3.	Blood in the urine		
4.	Painful or burning urination		
5.	Difficulty in having an erection		
6.	Painful ejaculation		
7.	Not aware of any symptoms		
	Total score out of.....7		

In your knowledge who gets cancer of the prostate?

1. Men below 40 years [ ]
2. 40-50 [ ]
3. 50-60 [ ]
4. 60-70 [ ]
5. above 70 [ ]
6. I do not know [ ]

Do you think adenocarcinoma of the prostateis preventable?

1. Yes [ ]
2. No [ ]
3. I do not know[]

If yes in qn 10 how can it prevented ?

1. Genital cleanliness [ ]
2. regular screening [ ]
3. use of condoms [ ]
4. Use of right Diet [ ]

5. Evading many sexual partners [ ] others…....

Is prostate cancer curable?

1. Yes [ ]
2. No [ ]

If yes, at what stage is it curable?

1. Early stage [ ]
2. any time treatment is began [ ]
3. late stage [ ]
4. I do not Know [ ]

Do you know of any method used in treating cancer of the prostate ?

1. Yes [ ]
2. No [ ]

If yes in qn 14, which methods of treatment do you know?

1. Radiotherapy [ ]
2. Surgery [ ]
3. Chemotherapy/drugs [ ]
4. Radiotherapy and Surger[]
5. Surgery, Drugs and Radiotherapy [ ]

3. Do you know about the screening tests available for cancer of the prostate?

    1. Yes [ ]
    2. No [ ]

4. If yes, please specify the screening tests you are aware of: _____

5. Do you think screening for cancer of the prostate is important?

    1. Yes [ ]
    2. No [ ]
    3. Not sure [ ]

Section D: Perception

	Sturdily disagree	Disgree	Neither agree or disagree	Approve	Strappingly agree
I fear the doctor will find cancer					
The cost of screening for cancer of the prostate is high.					

Screening for cancer of the prostate is uncomfortable.					
The screening process for cancer of the prostate has a lengthy waiting list.					
Loss of dignity results from screening for cancer of the prostate					
The body may suffer negative effects from cancer of the prostate screening.					

Section E: Attitude

(*use* 1=Strongly disagree *use* 2= Disgree *use* 3=Neither agree or disagree *use* 4=Agree *use* 5=Strongly agree)

	Sturdily disagree	Disgree	Neither agree or disagree	Agree	Sturdily agree
Men should be prepared to undergo screening for cancer of the prostate.					
It is a waste of time to screen for cancer of the prostate.					
In the case of good health, examination for prostate cancer is not required.					
I'll think about getting screened for prostate cancer only if I become ill.					
Regular detection of prostate cancer lowers the risk of developing prostate cancer in the future.					
Males should be ready to pay for cancer detection screenings.					
Screening for cancer of the prostate is not shameful.					

Section F: Cultural Belief

(*use* 1=Strongly disagree *use* 2= Disgree *use* 3= Neither agree or disagree *use* 4=Agree *use* 5=Strongly agree)

Fatalism belief	Sturdily disagree	Disgree	Neither agree or disagree	Agree	Sturdily agree
Whatever I do, if cancer of the prostate is meant to befall me, it will eventually find me.					
It would be better if I was unaware that I had cancer of the prostate.					
Perceived benefits					
I believe that any difficulties I may have undergoing the tests are outweighed by the advantages of prostate cancer screening.					
I think that cancer of the prostate can be effectively treated early with prostate screening.					
Fear					
The thought that a prostate cancer screening could be physically uncomfortable bothers me.					
If I get a prostate cancer screening, I'm worried the results will indicate that I have it.					

Appendix 3: Questionnaire for female partners

Q1.What is your age;……..

Q2.What is the highest level of education that you have attained

1. No formal education [ ]
2. Primary school education [ ]
3. Secondary school education [ ]
4. Tertiary school education [ ]

Q3. What is your religion

1. Christianity [ ]
2. Muslim [ ]
3. Hindu [ ]
4. Pagan [ ]

Q4. On average how much do you earn in a month

…….

Q5. What is your profession?

1. Unemployed [ ]
2. Self-employed [ ]
3. Employed [ ]

Section B: Knowledge and Awareness of Prostate Cancer

5. Have you heard about prostate cancer?
    1. Yes [ ]
    2. No [ ]
6. Where or how have you learned about cancer of the prostate?
    6) Mass media [ ]
    7) Hospital [ ]
    8) Community health workers [ ]
    9) Family/friends [ ]
    10) Any other [ ]

7. Do you believe that cancer of the prostate is a common disease ?
    1. Yes [ ]
    2. No [ ]
8. Do you believe that cancer of the prostate is a serious disease?
    1. Yes [ ]
    2. No [ ]
9. Do you know anyone who is suffering from cancer of the prostate today?
    1. Yes[ ]
    2. No[ ]
10. Have you heard/ do you know of cancer of the prostate screening
    1. Yes [ ]
    2. No [ ]
11. Do you know the symptoms of cancer of the prostate?
    1. Yes[ ]
    2. No [ ]
12. If yes in qn 7 , Are the following symptoms of prostate cancer?

Early signs of prostate cancer	Yes	No
Recurring urination		
Difficulty starting or discontinuing urination		
Blood in the urine		
Burning or agonizing urination		
Having trouble getting an erection		
Ejaculation that hurts		
Not aware of any symptoms		
	Total score out of.....7	

13. In your knowledge who gets cancer of the prostate ?
    1. Men below 40 years [ ]
    2. 40-50 [ ]
    3. 50-60 [ ]
    4. 60-70 [ ]
    5. above 70 [ ]
    6. I do not know [ ]
14. Do you think cancer of the prostate is preventable?
    1. Yes [ ]
    2. No [ ]
    3. I do not know[]
15. If yes in qn 10 how can it prevented ?

1. Genital cleanliness [ ]
2. regular screening [ ]
3. use of condoms [ ]
4. Use of right Diet [ ]
5. Evading many sexual partners [ ] others…....

16. Is Cancer of the prostate curable?
    1. Yes [ ]
    2. No [ ]
17. If yes, at what stage is it treatable?
    1. Initial stage [ ]
    2. any time treatment is began [ ]
    3. late stage [ ]
    4. I do not Know [ ]
18. Do you know of any method used in treating cancer of the prostate ?
    1. Yes [ ]
    2. No [ ]
19. If yes in qn 14, which methods of management do you know?
    1. Radiotherapy [ ]
    2. Surgery [ ]
    3. Chemotherapy/drugs [ ]
    4. Radiotherapy and Surger[]
    5. Surgery, Drugs and Radiotherapy [ ]

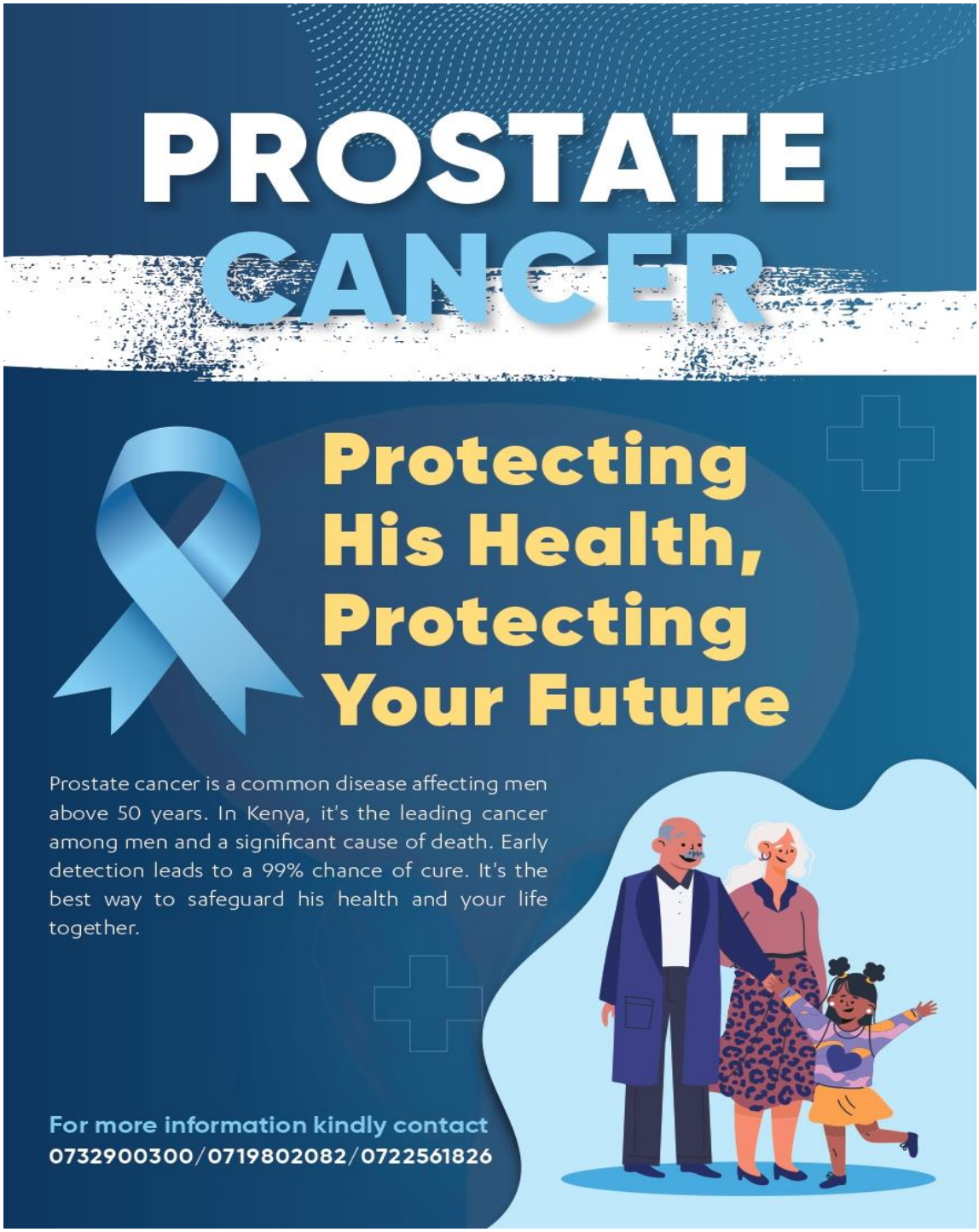
20. Are you aware of the cancer of prostate screening tests that are available?
    1. Yes [ ]
    2. No [ ]

20. If yes, please specify the screening tests you are aware of: _____

21. Do you think screening for cancer of the prostate is important?

    1. Yes [ ]
    2. No [ ]
    3. Not sure [ ]

Appendix 4: Gain-framed brochure



Is he at risk?

Race	:	Black men are at higher risk.
Family History	:	Prostate cancer, or other cancers, in his family raises the risk of prostate cancer.
Age	:	Risk increases as men get older.

Watch for signs, Get him screened and Gain Peace of Mind

Signs & Symptoms (Know What to Watch For)

- Frequent urination, especially at night
- Difficulty starting or stopping urine flow.
- Weak or interrupted urine stream
- Feeling like you can't fully empty your bladder.
- Pain or burning when urinating.
- Blood in urine or semen
- Problems getting an erection.

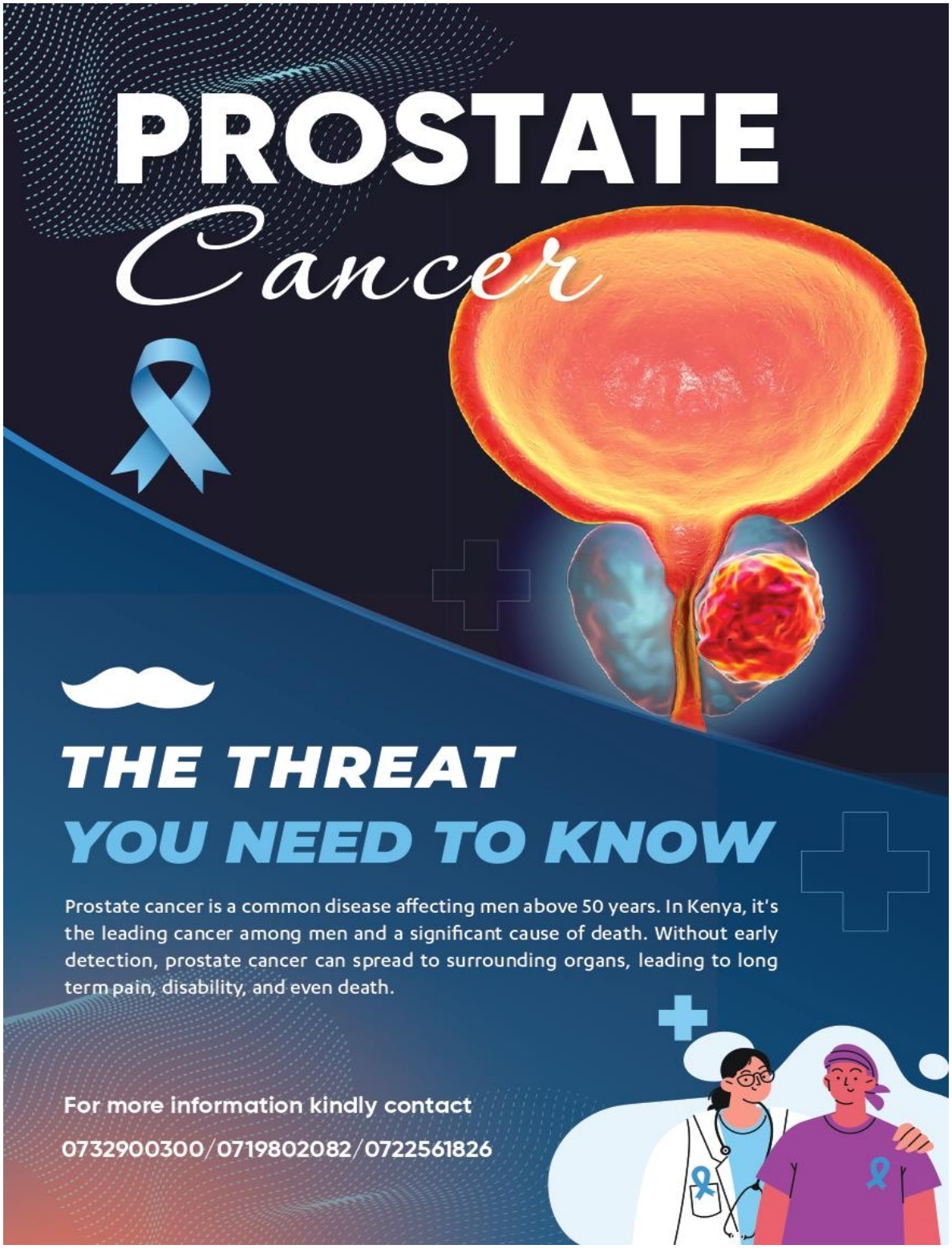
Catching prostate cancer early improves his response to treatment and offers the best chance of cure with a full, healthy life.

Simple Steps, Big Steps

Gains for Him	:	Screening provides his best chance for early detection, treatment and cure.
Gains for You	:	Knowing he's healthy offers peace of mind and lets you plan for many happy years together.
Gains for Your Future	:	Protecting his health is your love language to a stronger, longer-lasting partnership. Your Support Saves Lives
Empower Him	:	Your encouragement can push him toward action that gives him control over his health.
Gain Confidence	:	Promote screening as a positive step for his well-being, and yours.
Shared Victory	:	Celebrate healthy decisions with him, reinforcing the benefits of his actions.

For more information kindly contact
0732900300/0719802082/0722561826

Appendix 5: Loss-framed brochure



Could He be at risk?

Risk Factors:

Race	:	Black men are 2 times likely to get a diagnosis and die from prostate cancer compared to other races.
Family History	:	Prostate cancer, or other cancers, in your family raises your risk of prostate cancer.
Age	:	Risk increases as men get older.

Emphasize Risk:

If your man has one or more of these it increases his chances of getting prostate cancer.

Don't Ignore the Signs - Get Him Screened?

Signs & Symptoms (Know what to watch for):

- Frequent urination, especially at night
- Difficulty starting or stopping urine flow.
- Weak or interrupted urine stream
- Feeling like you can't fully empty your bladder.
- Pain or burning when urinating.
- Blood in urine or semen
- Problems getting an erection.

Early disease has no signs & symptoms:

The presence of this could be a sign of advanced disease

The price of Inaction

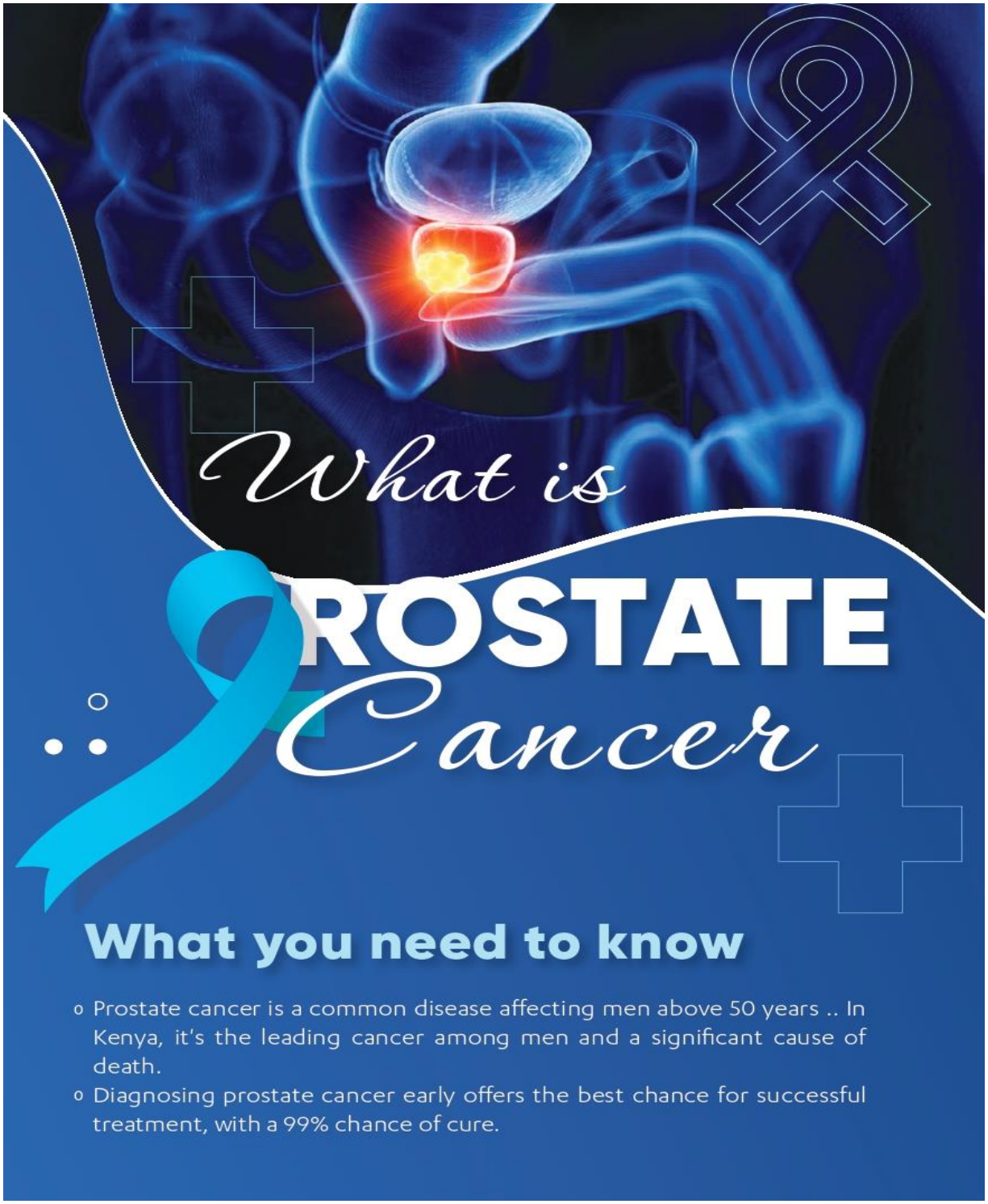
Loss of Health	:	Prostate cancer can rob him of his vitality, independence, and future plans.
Loss of Intimacy	:	Advanced prostate cancer and its treatments can lead to sexual problems, straining your relationship.
Loss of Life	:	Late-stage prostate cancer is far more difficult to treat. Don't risk losing him to a preventable tragedy.

Protect Your Love, Protect His Life

Your Support is Key:

Don't Wait	:	Don't Wait: Help him overcome any hesitation, fear, or denial.
Act Now	:	Act Now: Urge him to see the doctor. Delay puts him in danger.
Shared Future	:	Shared Future: Fight for the healthy future you deserve together.

Appendix 6:Stardard bronchure



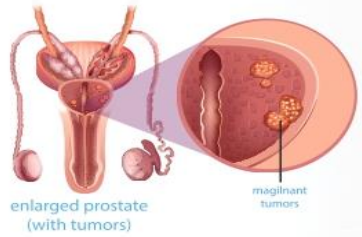
Risk Factors:

Race	:	Black men are at higher risk.
Family History	:	Prostate cancer, or other cancers, in your family raise your chances of getting prostate cancer.
Age	:	Risk increases as men advance in age.

Understanding Risk: Knowing these factors helps you and your partner to make informed decisions about his health. Be Aware of the Signs

Signs & Symptoms (Know what to watch for)

- Frequent urination, especially at night
- Difficulty starting or stopping urine flow.
- Weak or interrupted urine stream
- Feeling like you can't fully empty your bladder.
- Pain or burning when urinating.
- Blood in urine or semen
- Problems getting an erection.



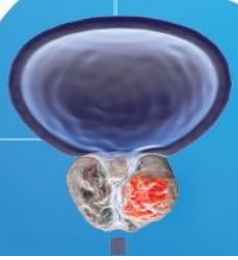
Why screening matters: Detecting prostate cancer early improves treatment options and disease outcome.

Steps to Reduce His Risk

Healthy Diet	:	More fruits, vegetables, whole grains; less red and processed meat.
Exercise Regularly	:	Aim for most days of the week.
Healthy Weight	:	Helps lower risk of many health problems.
Talk to the Doctor	:	Discuss prostate cancer and risks along with the benefits of screening.
Limit Alcohol, Avoid Smoking	:	Both raise risks for health problems.

Your Support: A powerful Tool

Be Open	:	Encourage him to speak to his doctor about any prostate health concerns.
Promote Screening	:	Support the importance of screening for early detection.
Healthy Life Together	:	Encourage positive change by adopting healthy habits alongside him.



For more information kindly contact
0732900300/0719802082/0722561826

Appendix 7: MKU Ethical Review Council Research approval

Mount Kenya University

REF: **MKU/ISERC/3124** Date: 15 September 2023
TO: **PETERSON KARIUKI KIMANI**
REG: **PHDPH/2021/40657**

Dear Sir/Madam,

RE: THE ROLE OF FEMALE PARTNERS LEAD INITIATIVE ON PROMOTING PROVIDER DISCUSSIONS ABOUT PROSTATE CANCER SCREENING AMONG MEN IN KIAMBU COUNTY, KENYA.

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2168.** The approval period is **15/09/2023 - 14/09/2024.**

This approval is subject to compliance with the following requirements;

i. Only approved documents including informed consents, study instruments, MTA will be used
ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
v. Clearance for export of biological specimens must be obtained from relevant institutions
vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) https://research-portal.nacosti.go.ke/ and also obtain other clearances needed.

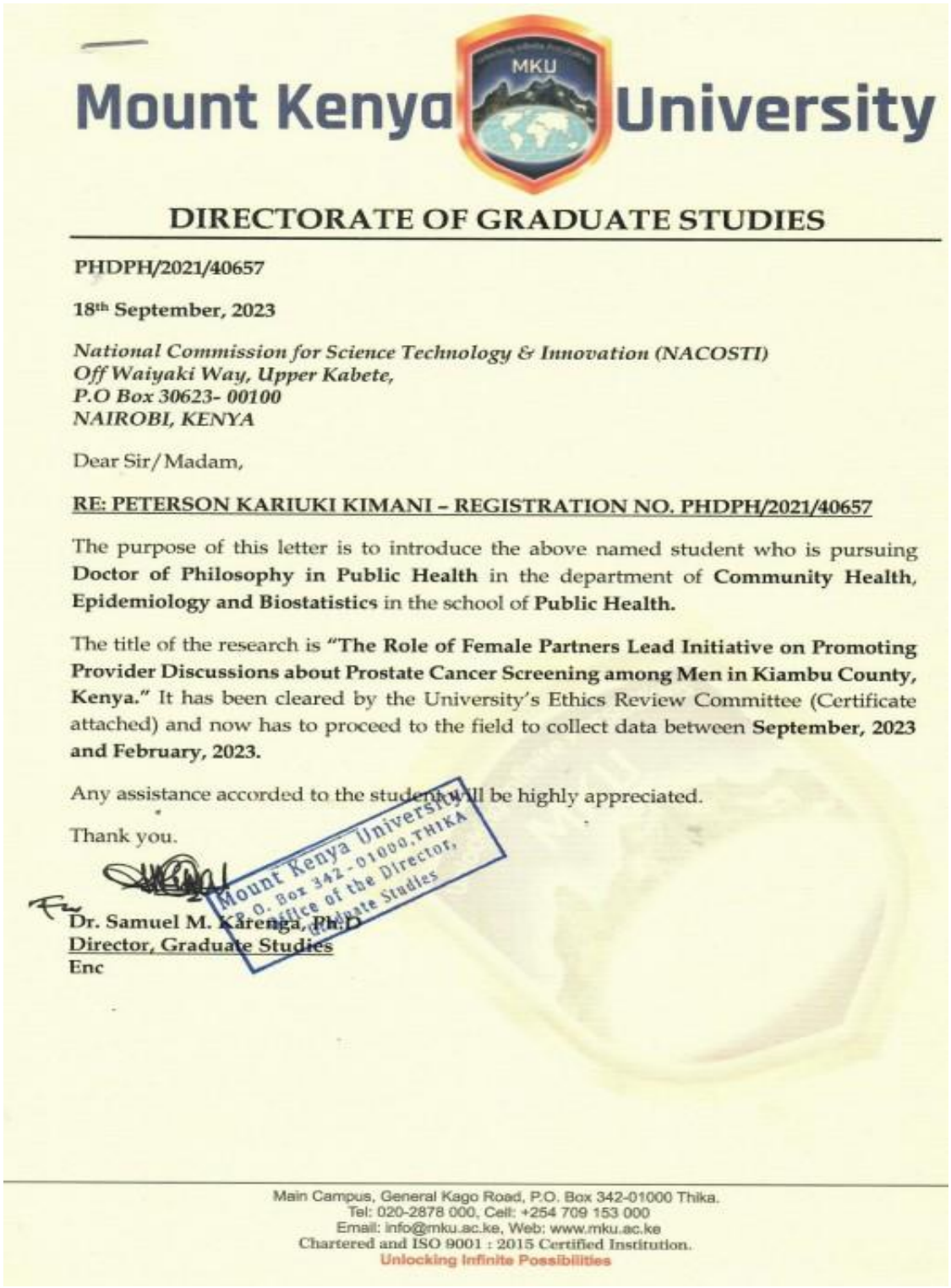
Yours sincerely,

The Chairman Mount Kenya University Research Committee P.O. Box 342-01000, Thika

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: 020-2878 000, Cell: +254 709 153 000
Email: info@mku.ac.ke, Web: www.mku.ac.ke
Chartered and ISO 9001 : 2015 Certified Institution.
Unlocking Infinite Possibilities

Appendix 8: MKU Graduate school approval



Mount Kenya University

DIRECTORATE OF GRADUATE STUDIES

PHDPH/2021/40657

18th September, 2023

National Commission for Science Technology & Innovation (NACOSTI)
Off Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/Madam,

RE: PETERSON KARIUKI KIMANI – REGISTRATION NO. PHDPH/2021/40657

The purpose of this letter is to introduce the above named student who is pursuing **Doctor of Philosophy in Public Health** in the department of **Community Health, Epidemiology and Biostatistics** in the school of **Public Health.**

The title of the research is **"The Role of Female Partners Lead Initiative on Promoting Provider Discussions about Prostate Cancer Screening among Men in Kiambu County, Kenya."** It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **September, 2023 and February, 2023.**

Any assistance accorded to the student will be highly appreciated.

Thank you.

Mount Kenya University
P.O. Box 342-01000, THIKA
Office of the Director,
Graduate Studies

For

Dr. Samuel M. Karenga, Ph.D
Director, Graduate Studies
Enc

Main Campus, General Kago Road, P.O. Box 342-01000 Thika.
Tel: 020-2878 000, Cell: +254 709 153 000
Email: info@mku.ac.ke, Web: www.mku.ac.ke
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Appendix 9: NACOSTI Approval

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **258326**

Date of Issue: **27/September/2023**

RESEARCH LICENSE

This is to Certify that Mr.. Peterson Kariuki Kimani of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kiambu on the topic: THE ROLE OF FEMALE PARTNERS-LED INITIATIVES IN PROMOTING PROVIDER DISCUSSIONS ON PROSTATE CANCER SCREENING AMONG MEN IN KIAMBU COUNTY, KENYA for the period ending : 27/September/2024.

License No: **NACOSTI/P/23/29822**

258326

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.

See overleaf for conditions

Appendix 10: Kiambu County Research Approval

COUNTY GOVERNMENT OF KIAMBU

DEPARTMENT OF HEALTH SERVICES

P.O Box 2344 - 00900 Kiambu, Kenya

Tel: +254 709 877 000 **Email**: info@Kiambu.go.ke **Website**: www.Kiambu.go.ke **Twitter**: @KiambuCountyGov

REFERENCE KIAMBU/HRDU/AUTHO/KARIUKI P.

Date: 19TH DEC 2023

TO WHOM IT MAY CONCERN,

RE: CLEARANCE TO CONDUCT RESEARCH IN KIAMBU COUNTY

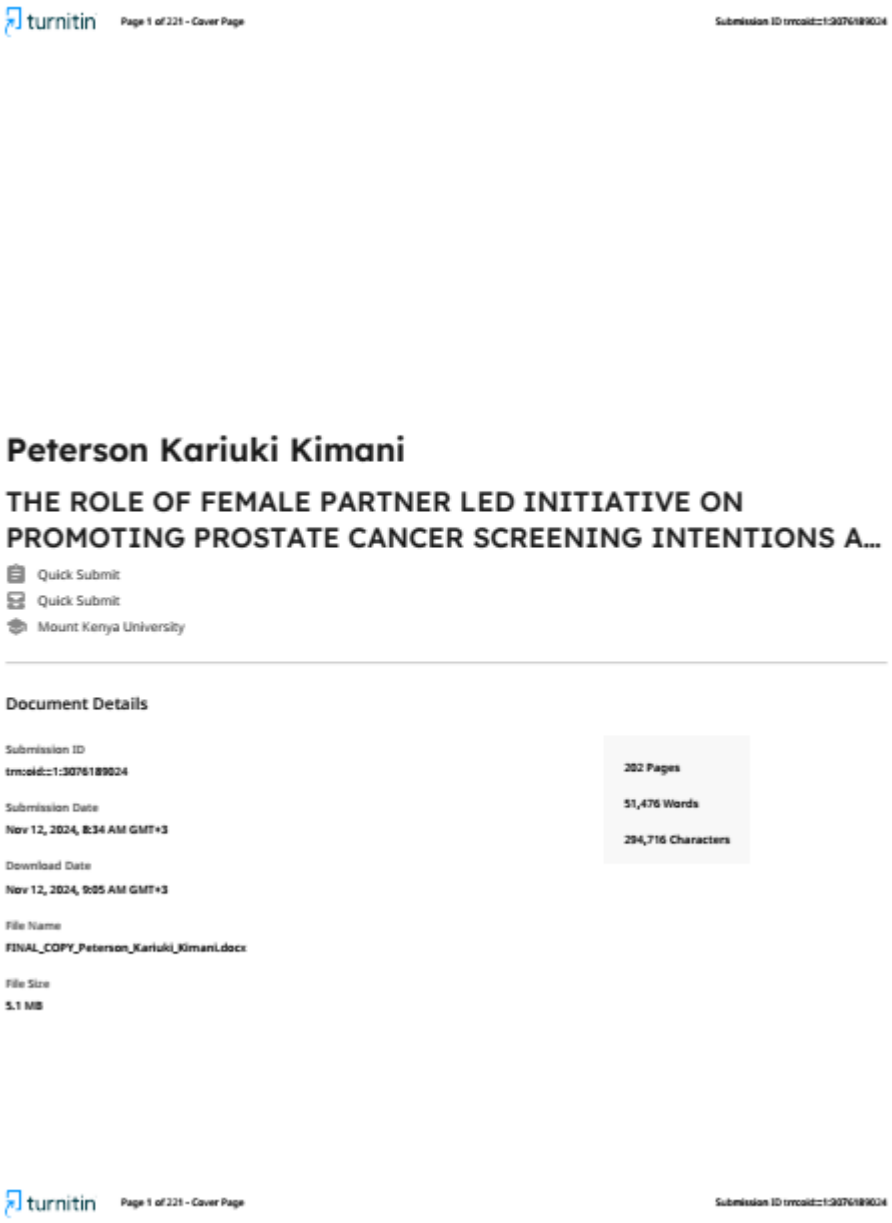
Kindly note that we have received a request by **Peterson Kariuki** of **Mount Kenya University** to carry out research in Kiambu County, the research topic being on ***"The role of female partners' lead initiative on promoting provider discussions about prostate cancer screening among men in Kiambu county, Kenya"***.

We have duly inspected his documents and found that he has been cleared by **Mount Kenya University ISERC** until **14th September 2024**. He thus does not need any further clearance with another regulatory body in order to conduct research within the county of Kiambu.

However, it is incumbent upon the facility in which the research is being carried out to ensure that they are conversant with the remit of the study and operate in line with their institutional norms on conducting research. This note also accords him the duty to provide feedback on his research to the county at the conclusion of his research.

DR. JUNE MUTHIORA
COUNTY HEALTH RESEARCH OFFICER
KIAMBU COUNTY

Appendix 11: Similarity Index Report



15% Overall Similarity

The combined total of all matches, including overlapping sources, for each database.

Filtered from the Report

- Bibliography

Match Groups

- 440 Not Cited or Quoted 11%
  Matches with neither in-text citation nor quotation marks
- 145 Missing Quotations 3%
  Matches that are still very similar to source material
- 5 Missing Citation 0%
  Matches that have quotation marks, but no in-text citation
- 0 Cited and Quoted 0%
  Matches with in-text citation present, but no quotation marks

Top Sources

11% Internet sources
8% Publications
4% Submitted works (Student Papers)

Integrity Flags

0 Integrity Flags for Review

No suspicious text manipulations found.

Our system's algorithms look deeply at a document for any inconsistencies that would set it apart from a normal submission. If we notice something strange, we flag it for you to review.

A Flag is not necessarily an indicator of a problem. However, we'd recommend you focus your attention there for further review.

turnitin Page 2 of 221 - Integrity Overview Submission ID trnoid::1:3076189024

Appendix 12: Map of the Study Area

Coordinates :1.0314° S, 36.8681° E