

Assessing prostate cancer awareness among the adult male
population: A cross-sectional survey in Oddanchatram
municipality, Dindigul, Tamil Nadu

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**Dissertation submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Public Health**

ACHUTHA MENON CENTRE FOR HEALTH SCIENCE STUDIES

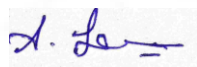
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June, 2025

DECLARATION

I hereby declare that this dissertation titled **“Assessing prostate cancer awareness among the adult male population: A cross-sectional survey in Oddanchatram Municipality, Dindigul, Tamil Nadu”** is the bona fide record of my original research. It has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.



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CERTIFICATE

Certified that the dissertation titled **“Assessing prostate cancer awareness among the adult male population: A cross-sectional survey in Oddanchatram Municipality, Dindigul, Tamil Nadu”** is a record of the research work undertaken by Dr. Lenin A, in partial fulfillment of the requirements for the award of the degree of “Master of Public Health” under my guidance and supervision.



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Glossary of abbreviations

HIC	High income countries
LMIC	Low- and middle-income countries
DRE	Digital rectal examination
PSA	Prostate specific antigen
MRI	Magnetic resonance imaging
CT	Computed tomography
CCB	Calcium channel blockers
BMI	Body mass index

HPV	Human papilloma virus
BRCA	Breast Cancer gene
IARC	International agency for research on cancer
GDP	Gross domestic product
HDI	Human development index
PBCR	Population based cancer registries
ICMR	Indian council for medical research
NHM	National health mission
PI	Principal investigator
ODK	Open data kit
OBC	Other backward classes
SC	Scheduled classes

Abstract

Background: Prostate cancer is a leading cancer among men globally. In India, rural men often lack knowledge about prostate cancer's risk factors, symptoms, and the importance of early screening. This study aimed to evaluate the awareness levels of prostate cancer among men aged 40 and above in Oddanchatram, Tamil Nadu, focusing on their understanding of risk factors, symptoms, and early detection.

Methods: This cross-sectional study was conducted across all 18 wards in Oddanchatram municipality, sampling men aged 40 and above using systematic sampling covering the sample size of 216. Data was collected through an interviewer-administered questionnaire covering demographic details, awareness of prostate cancer risk factors, symptoms, and screening options. Descriptive analysis was done to answer the study objectives and cross tabulation and Chi square test was used for testing the associations. The data was analysed in R version 4.4.1.

Results: More than 70 percent of participants were below 60 years of age, and nearly 23 percent of participants were primary or not formally educated. Only 15 percent knew about the prostate gland, 12 percent recognized prostate cancer, and less than one percent were aware of PSA testing. Nearly 97 percent had never visited a doctor for prostate issues and 91 percent of the participants could not name any risk factors, and 89 percent were unaware of any symptoms. Those with higher education were significantly more aware of prostate cancer compared to less educated (34% Vs 4%, $P < 0.001$).

Conclusion: Severe lack of prostate cancer awareness highlights the need for policies focussed on men, and targeted education campaigns focussing on the less-educated groups and substance users, to improve early detection and health literacy.

Chapter - 1

Introduction and Literature review

1.1 Background

Globally, prostate cancer is becoming a significant public health concern. In the year 2022, prostate cancer emerged as the world's second most common cancer in men and the fifth leading cause of male cancer mortality, with about 1.5 million diagnoses and nearly 400,000 deaths recorded globally (Bray et al., 2024). The disease has profound implications not only for the health of individuals but also for healthcare systems, necessitating an urgent focus on awareness and education to enhance early detection. Despite advancements in medical technology and an increase in screening protocols, awareness of prostate cancer remains alarmingly low among the general population, leading to late diagnoses and missed opportunities for effective management and treatment (Deccan Herald, 2024).

Across 112 countries worldwide, prostate cancer holds the distinction of being the most frequently detected cancer in males. The number of global prostate cancer cases is anticipated to increase from 1.4 million in 2020 to 2.9 million by 2040, primarily driven by demographic shifts and greater life expectancy (Nicholas D. James et al., 2024). There are notable differences in diagnostic patterns between higher-income economies and low-to-middle-income economies. In High income countries (HICs), older men are frequently over-screened, while younger men at higher risk are often insufficiently screened. In contrast, men in low and middle income countries (LMICs), frequently experience advanced-stage diagnoses due to delays in detection and inadequate access to early diagnostic services (James et al., 2024).

Globally, this cancer represents 14.2% of new diagnoses in men, with an age-standardized incidence rate of 29.4 per 100,000 population. Incidence rate of prostate cancer is greater in Europe, North America, and Australia than in Asia and Africa. The increased frequency of screening tests for asymptomatic men or a real rise in the disease's incidence are the two probable causes for the higher incidence of prostate cancer(Sankarapillai et al., 2024).

Awareness levels of prostate cancer's risk factors, symptoms, and the importance of early detection vary widely in many regions, including India,. Sociocultural factors, coupled with educational gaps and stigma associated with discussing men's health issues, contribute to the persistent knowledge deficits observed in various populations(Bhargavi et al., 2023). Furthermore, disparities in healthcare access and policies exacerbate the challenges associated with prostate cancer awareness, making it crucial to explore these aspects in detail.A large number of men believe that admitting to health concerns, particularly those involving reproductive organs, could show them as weak. This societal stigma can hinder diagnosis, leading some men to pursue medical intervention only when their condition has advanced to a more severe and challenging-to-treat phase(Times Now, 2024).

A Latin American study conducted in Colombia, Brazil, and, Argentina, highlights how cultural beliefs, gender expectations, and social norms influence stigma. Ideas related to masculinity, like power and invulnerability, contribute to stigmatizing prostate cancer. The machismo culture **‘which is characterized by a strong sense of masculine pride, an intensified version of manliness that ostensibly grants men a sense of entitlement across various aspects of life’**. This concept, rooted in the Spanish term *‘macho’*, illustrates the ingrained belief in numerous Latin American communities that men ought

to exhibit both practical and symbolic superiority over women, along with religious and spiritual beliefs, exacerbates the difficulties and obstructs open dialogue regarding the illness. Cultural taboos, a lack of awareness, and misunderstandings continue to sustain the stigma(Castaldelli-Maia et al., 2024).

Among men worldwide, prostate cancer is the second most common cause of cancer mortality, with significant disparities in awareness, screening practices, and outcomes across regions (Rao et al., 2023). While high-income countries have established screening programs that have contributed to early detection and improved outcomes, low- and middle-income countries like India face substantial barriers in raising awareness and promoting early screening, predominantly in rural areas (Sankarapilla et al., 2024). The combination of socio-cultural stigma, limited healthcare infrastructure, and policy gaps has resulted in delayed diagnosis and poorer outcomes for many men, particularly in rural and underserved populations.

Prostate cancer has traditionally been regarded as a condition affecting men over 64 years old. However, the proportion of patients younger than 65 has been steadily increasing, suggesting changes in the disease's aetiology and pathogenesis. Studies show that men with early-onset prostate cancer, which often has a strong genetic basis, are more likely to experience cancer-related mortality. This trend contributes to the overall burden of the disease and highlights the need for targeted research and intervention strategies to address the incidences among younger population effectively(Zhai et al., 2020).

The genetic prostate cancer study done in the UK is one of the multi-dimensional, longitudinal studies. Studies conducted since 1992 reveal that a stronger familial history correlates with increased prostate cancer death rates. Men with a brother or father diagnosed with prostate cancer is two time more at risk of developing prostate cancer and

there is a 3- to 5-fold increase in risk if the family member suffered from early onset prostate cancer diagnosed at the age of 55 or less warranting appropriate screening for the concerned individual as the study has demonstrated a strong relationship between family history and prostate cancer mortality(Brook et al., 2023).

To combat the increasing burden of prostate cancer globally, it requires a diverse approach that includes raising awareness, improving access to early screening, and creating solutions that address the particular challenges different people face across the world. While high-income countries have made progress in early detection and management, significant disparities persist in low and middle-income countries, where multiple factors including sociocultural differences, poor healthcare infrastructure, and increased policy gaps with regards to healthcare issues faced by men hinder progress. Moreover, increased incidences of young men getting prostate cancer are noted, with genetics playing a big role. This shows why we need better education, screening based on family history, and more research to tackle the disease. To fix these issues, doctors, leaders, and communities must work together to make sure everyone, everywhere, can access prevention and testing services

1.2 Literature review

This literature review provides a comprehensive analysis of global prostate cancer awareness, with particular emphasis on the Indian context. It examines key epidemiological data worldwide and in India, outlines the anatomy and physiological functions of the prostate gland, and discusses associated risk factors, symptoms, and current policy gaps in policies addressing men's health. Additionally, it proposes actionable strategies to enhance awareness initiatives. The findings of this review will

contribute to a deeper understanding of how improved awareness can facilitate early detection, optimize health outcomes, and ultimately reduce the burden of prostate cancer.

1.2.1. Prostate anatomy

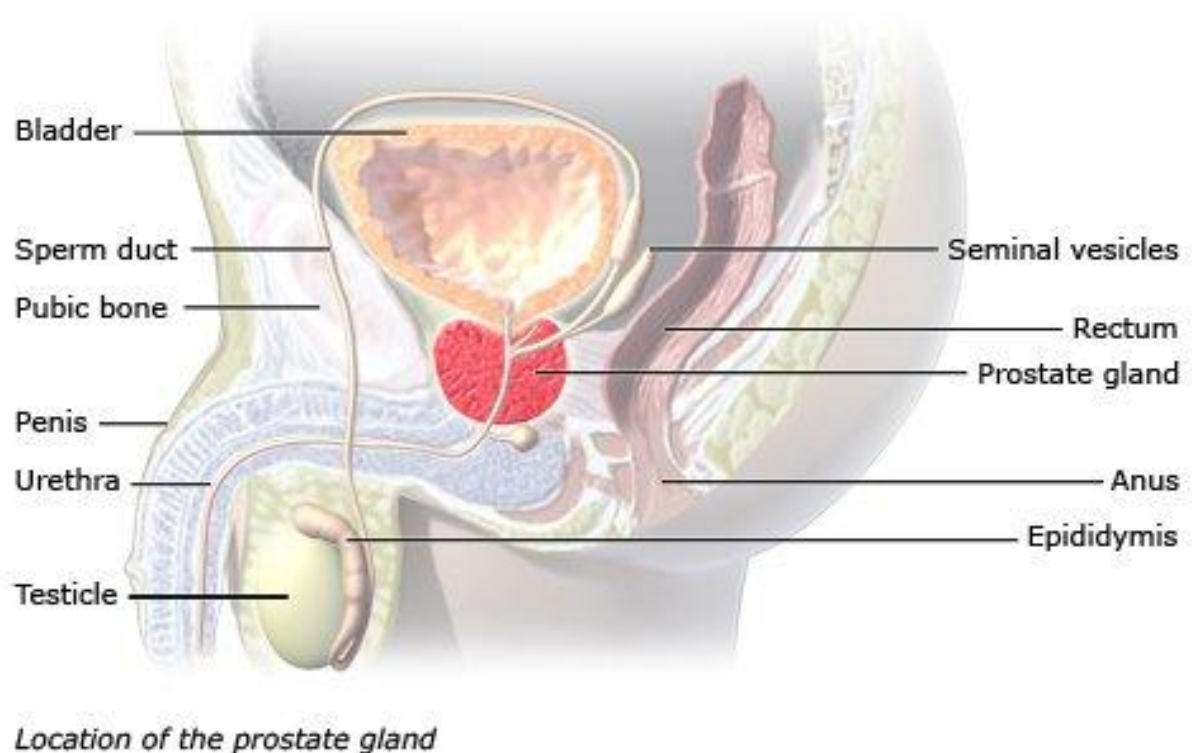


Figure1.1 - Prostate gland anatomy, courtesy (informedhealth.org, 2022).

The prostate interpreted **‘one who stands before’** in the Greek language is a walnut sized gland located below the urinary bladder and in front of the rectum weighing about 30 grams, belonging to the male reproductive system, located deep inside the body just beneath the bladder and above the pelvic floor muscles. It is positioned in front of the rectum, allowing the gland to be felt through the rectum using a finger(InformedHealth.org, 2022). Positioned just behind it are the seminal vesicles, which produce the majority of the fluid in semen that supports and nourishes the

spermatozoa. The urethra passes through the prostate carrying both the urine and semen(Sekhoacha et al., 2022).

1.2.2 Prostate cancer

Cancer is a condition in which certain cells in the body grow in an uncontrollable manner without the usual signals that regulate cell growth. They have the ability to spread to other areas of the human body via blood, lymphatic fluid or locally to the adjacent organs. This disease can originate in almost any part of the physical body, which is composed of innumerable number of cells. Typically, human cells grow and divide to create new cells as needed. Old or damaged cells naturally die off, and new ones take their place. However, this orderly process can sometimes malfunction, causing abnormal or damaged cells to grow and multiply without inhibition. These cells can form lumps of tissue known as tumours, which may be either benign or cancerous ('What Is Cancer?' - NCI, 2021).

As a man ages, prostate gland has a tendency to grow in size which is known as benign prostate hypertrophy which is harmless. Prostate cancers develop within the gland's epithelial lining and can vary widely in severity, from slow-growing, non-threatening tumours that may not require treatment to aggressive, fast-growing cancers that can be life-threatening(James et al., 2024). Almost all of the diagnosed prostate cancers are adenocarcinomas with a relatively low percentage of the cancers belonging to different other types. In some individuals, prostate cancer might begin as a precancerous condition before evolving into a cancerous one which is usually found during prostate biopsy (American Cancer Society, 2024).

One might notice early symptoms only if the cancer grows close to the urethra and puts pressure on it, which can change how one urinates. However, since prostate cancer

usually begins in the outer part of the prostate, it often doesn't press on the urethra early on, so symptoms are less common at first(Prostate CancerUK, 2024).

1.2.3 Symptoms of prostate cancer

Prostate cancer in its early stages often has no obvious identifiable symptoms making screening crucial for early detection. However recognizing the symptoms can help address the condition in reducing the morbidity and mortality, as prostate cancer diagnosed and treated in its initial stages has an excellent prognosis(Prostate Cancer UK, 2024).

Symptoms of prostate cancer are as follows,

- Difficulty initiating urination or fully emptying the bladder.
- A diminished flow of urine during urination.
- A sensation that the bladder has not completely emptied.
- Leaking urine after completing urination.
- An increased frequency of urination, particularly during the night.
- An urgent need to urinate – occasionally leading to urine leakage before reaching the restroom.
- Pain in the hips, lower back or pelvic area
- Challenges in obtaining or maintaining an erection.
- Blood stained urine or semen.
- Unexplained loss of weight

1.2.4 Screening methods of prostate cancer

Awareness of prostate cancer symptoms and its screening options is an important factor in early detection and improved outcomes. Common symptoms of prostate cancer, such as difficulty urinating, pelvic pain, and erectile dysfunction, are often overlooked or attributed to aging by men(Rao et al., 2023). This lack of awareness contributes to delayed diagnoses and poorer prognosis

Currently, there are no standard or regular screening tests specifically for prostate cancer; however, the following assessments are utilized for screening purposes(National Cancer Institute, 2024).

i. Digital Rectal Examination.

A digital rectal exam (DRE) involves an examination of the rectum where a healthcare professional, using a lubricated and gloved finger, inserts it into the lower rectal area to check the prostate for any lumps or irregularities.

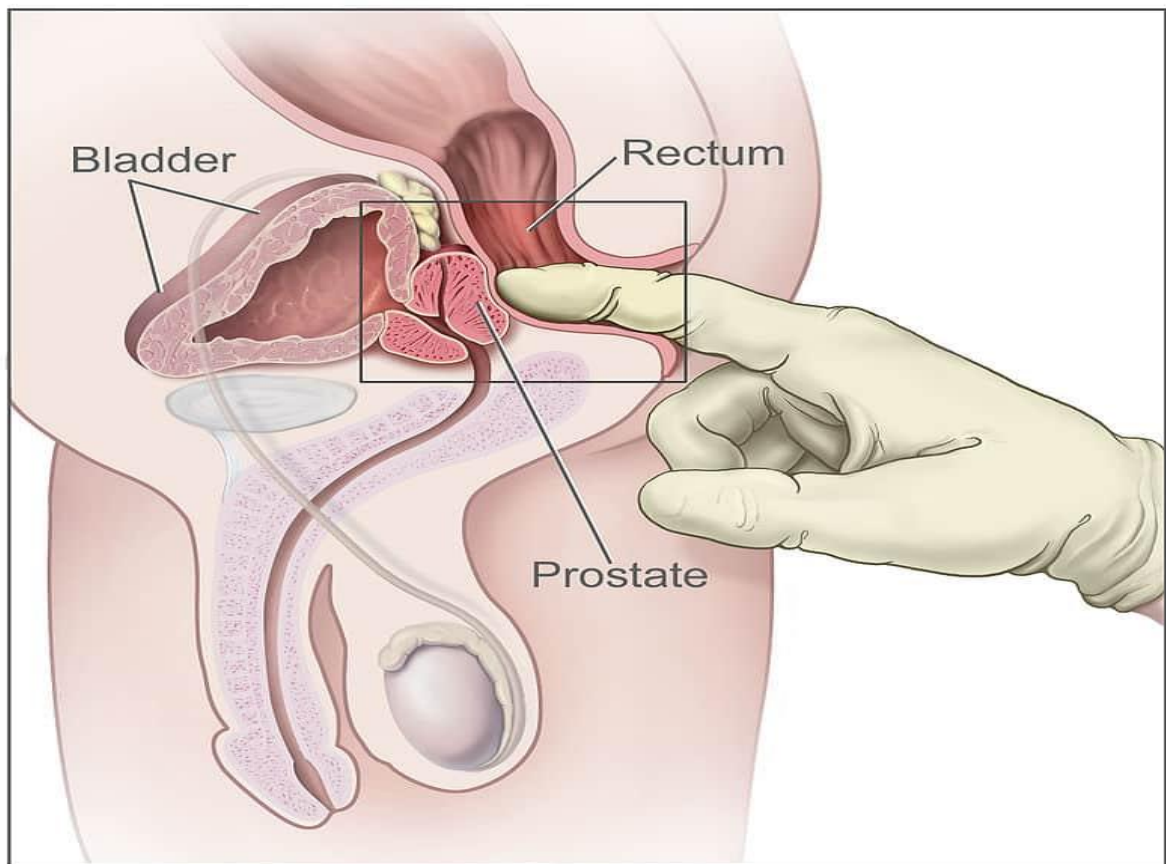


Figure 1. 2 – Digital rectal examination, courtesy (Mandal, 2014).

ii. Prostate Specific Antigen (PSA) test

Prostate cancer Screening, particularly PSA testing, is a crucial tool for early detection. A prostate-specific antigen (PSA) test assesses the PSA concentration in the blood. This substance, primarily produced by the prostate, can be present in elevated levels in the

blood of males diagnosed with prostate cancer. Additionally, males with prostate infections or inflammation may also exhibit high PSA levels. Studies from high-income countries have shown that widespread PSA screening can significantly reduce prostate cancer mortality (Lofters et al., 2024).

Other tests done including:

- An MRI
- A prostate biopsy.
- A CT
- A bone scan.

1.2.5 - Prostate cancer risk factors

The key risk factors include older age, a family history of the disease, low levels of physical activity, smoking, low ejaculation frequency and sexual activities, metabolic syndrome, prolonged use of calcium channel blockers (CCBs), increased BMI, sexually transmitted infections like gonorrhoea and HPV-16, and being of Black ethnicity (Gandaglia et al., 2021; Rawla, 2019).

Men who have a parent or sibling with a history of prostate cancer are two times more at risk of developing prostate cancer (Gandaglia et al., 2021). Old men above 50 years old are at the risk of getting prostate cancer and it has been not very often found in men below the age of 40. Of all prostate cancer cases, six in ten are detected in men beyond 65 years of age (Prostate Cancer – ICMR – National Institute of Cancer Prevention and Research, 2021a).

Certain inherited genetic mutations like BRCA 1&2 which are traditionally associated with female reproductive organ cancers like breast and ovary are also responsible for developing prostate cancer in men(Gandaglia et al., 2021; Ren et al., 2019). Prostate cancer risk was higher in men with a first-degree family history of female breast cancer, particularly when the affected relatives were mothers or sisters. Notably, the risk of aggressive prostate cancer rose significantly in those with a maternal family history of breast cancer, but not when only sisters were affected. These findings hold important implications, as the biological mechanisms driving prostate cancer remain poorly understood. Improved understanding of this association could enhance screening strategies, facilitate earlier detection, and optimize clinical management of prostate cancer(Ren et al., 2019). Prostate cancer risk is elevated in men who have Lynch Syndrome, also known as hereditary non-polyposis colorectal cancer(Bancroft et al., 2021; Gandaglia et al., 2021).

In a multiethnic research done in the US, Western diet habits like consumption of food with higher fat content, red meat and dairy, heightens the risk of getting prostate cancer by 12 times(Bashir, 2015). Red meat cooked at higher temperatures has positive correlation with increased risk of highly aggressive prostate cancer(Bashir, 2015; Joshi et al., 2012). A person with a BMI of >24.9 has two times more risk of developing prostate cancer(Ganesh et al., 2011). In a study done in rural Faisalabad, Pakistan by Bashir and Malik, it was found that an obese person has six times more odds of getting prostate cancer compared to a non-obese person(Bashir and Malik, 2015).

Sexually transmitted diseases like gonorrhoea and syphilis have been found to be associated with prostate cancer along with prostatitis. Increased sexual activity has been noted to have a positive relationship with development of prostate cancer(Bashir, 2015;

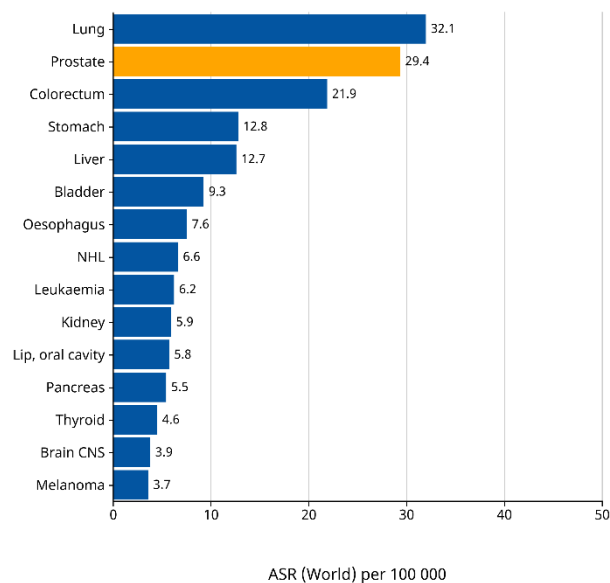
Sankarapillai et al., 2024). But smoking has been associated with increased deaths among those who have prostate cancer. It's been hypothesized that smoking might stimulate development of highly invasive prostate cancer (Bashir, 2015; Sankarapillai et al., 2024).

Recent studies link incidence of prostate cancer with prolonged exposure to pesticides among farmers and pesticide applicators. How the environmental exposure to pesticides causes prostate cancer has been unclear. In an environment-wide association study done in the United States to explore county-level associations among 295 pesticides and prostate cancer incidence across counties, twenty two of the commonly used pesticides were found to be associated with prostate cancer variations including aggressive types and Four pesticides with higher prostate cancer mortality which calls for increased research to study the potential public health impacts of pesticide exposure (Soerensen et al., 2024; Varghese et al., 2021). Some studies have linked prostate cancer to male sterilization procedure 'Vasectomy' although it has not been proven yet of the possible correlation between the two. There are currently researches ongoing to find the possible links (Prostate Cancer UK, 2024).

International Agency for Research on Cancer (IARC) which is a part of World Health Organization (WHO) has found that exposure to arsenic leads to prostate cancer (Yang et al., 2022). Exposure to certain chemicals has been found to increase the risk of prostate cancer in firefighters including emergency first responders, criminal investigators, building safety inspectors, and various administrative professionals due to periodic occupational exposure to chemicals arising from fumes and various burning materials (American Cancer Society, 2022).

1.2.6 - Global Burden of Prostate Cancer

Age-Standardized Rate (World) per 100 000, Incidence, Males, in 2022
World
(Top 15 cancer sites)



Cancer TODAY | IARC - <https://gco.iarc.who.int/today>
Data version : Globocan 2022 (version 1.1)
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ASR (World) per 100 000

International Agency
for Research on Cancer
World Health
Organization

Figure 1.3 -Age standardized global incidence rate of Prostate cancer among men

The global burden of prostate cancer is increasing, with notable regional variations in incidence and mortality. In high-income countries (HICs), the availability of prostate-specific antigen (PSA) testing and superior healthcare systems has facilitated early detection, resulting in improved outcomes (Bray et al., 2024). Prostate cancer incidence rates worldwide are strongly associated with GDP and the Human Development Index (HDI), with high income countries (HICs) generally exhibiting higher rates than low-income nations (Bhargavi et al., 2023).

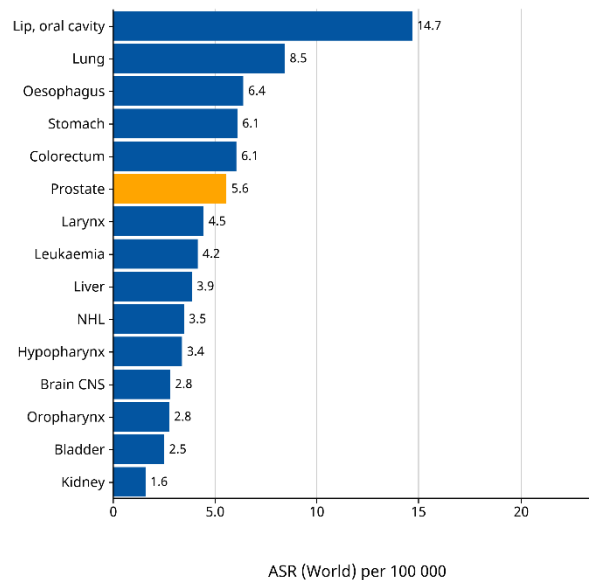
Western and Northern Europe, along with the United States and Canada, have achieved significant reductions in prostate cancer mortality over recent decades. In contrast, many Asian and African countries have experienced rising mortality rates, driven by increasing

incidence and persistent challenges in accessing diagnostic and treatment services. Within countries, social class disparities significantly influence cancer outcomes. Wealthier men are more likely to be diagnosed with prostate cancer, whereas poorer men face higher mortality due to limited access to screening, late-stage diagnoses, and barriers to timely and effective treatment. These disparities extend beyond income, encompassing factors like neighbourhood environments, immigration status, and access to social support system(Baker and Brown, 2018). Over the past decade, the incidence of prostate cancer has been rising steadily in Asian countries, notably in Singapore, China, Malaysia, and Japan. This trend is thought to be influenced by changes in diet and other lifestyle factors (Bhargavi et al., 2023).

Conversely, in many low- and middle-income countries (LMICs), such as India, prostate cancer is often diagnosed at more advanced stages, contributing to elevated mortality rates (Sankarapilla et al., 2024). Research emphasizes that diagnosing prostate cancer at an early stage significantly enhances survival, highlighting the need for enhanced awareness and widespread screening initiatives(Lofters et al., 2024). Furthermore, it's observed that the incidence of prostate cancer has risen in most countries except a few high-income nations(Center et al., 2012). However, declines in prostate cancer mortality have been predominantly seen in resource-rich countries, while mortality rates have increased in low-resource settings (Center et al., 2012b).

1.2.7 Prostate Cancer in India

Age-Standardized Rate (World) per 100 000, Incidence, Males, in 2022
India
(Top 15 cancer sites)



Cancer TODAY | IARC - <https://gco.iarc.who.int/today>
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International Agency
for Research on Cancer
World Health
Organization

Figure 1.4 -Age standardized incidence rate of Prostate cancer among men in India

The true incidence of prostate cancer in India remains uncertain due to several challenges, including the limited coverage and reliability of population-based cancer registries (PBCRs), underreporting of cases, and the stigma surrounding prostate cancer. Additionally, there is a notable absence of community-level studies in India to better understand and address the actual disease burden (Bhargavi et al., 2023). Within the Indian context, cancer registries from various states in India have shown a rising incidence of prostate cancer among individuals aged 65 and older. Additionally, many cases are diagnosed at advanced stages, contributing to a significant burden of the disease (Bakshi et al., 2022).

Prostate cancer ranks as the second most common cancer among men in major Indian cities such as Delhi, Kolkata, Pune, and Thiruvananthapuram. It is the third most prevalent cancer in cities like Bangalore and Mumbai and is listed among the top ten cancers in other regions covered by Population-Based Cancer Registries (PBCRs) across India(Jain et al., 2014). The data indicates that prostate cancer affects almost all regions of the country to a similar extent, and the incidence of prostate cancer has been consistently rising in all PBCRs(Sankarapillalet al., 2024).

Prostate cancer currently accounts for roughly 3% of all cancers in India, leading to an estimated 33,000 to 42,000 new cases each year(James et al., 2024). The age-adjusted incidence rate of prostate cancer shows significant variability across regions in India, with reports indicating rates as low as 1.2 per 100,000 in some areas. As of 2022, prostate cancer constituted 6.1% of all male cancer incidents in the country, highlighting its growing prevalence(Sankarapillalet al., 2024).

Prostate cancer rates were higher in cities like Delhi, Kamrup Urban, and Mumbai, with about 11.8, 10.9, and 9.7 cases per 100,000 people, respectively. Factors related to lifestyle and the lack of data collecting and reporting of cases in rural regions are the main causes of the statewide differences in prostate cancer incidence rates in India(Bhargavi et al., 2023). The risk of getting prostate cancer increased after the age of 40, with a sharp rise noticed after age 50(Prostate Cancer – ICMR – National Institute of Cancer Prevention and Research, 2021b). Between 1982 and 2016, the number of prostate cancer cases grew by 2.6 percent each year(Sankarapillalet al., 2024).

As per the secondary analysis done by Sankarapillalet al, of the data from the national cancer registries, about 43 percent of prostate cancer cases were found when the disease had already spread to other parts of the body. Surgery and radiation therapy, either alone

or combined with other treatments, were used to treat 78.5 percent of early-stage cases, 74.2 percent of regional cases, and 57.2 percent of cases where cancer had spread(Sankarapilla et al., 2024).

Data on the true incidence of prostate cancer in India is limited, owing to the fact that prostate cancer is not a notifiable disease and the country has only a few population-based cancer registries. The country also has a dearth of community-based studies on prostate cancer(Hariharan and Padmanabha, 2016). Emerging data suggest that the prevalence of prostate cancer is notably increasing among younger men in India, particularly those under 50 years old. Historically, prostate cancer primarily affected older men; however, the rising incidence in younger populations points to changing risk factors and potential genetic predispositions that require further investigation (Deccan Herald, 2024)

In India, awareness about prostate cancer remains critically low, especially in rural areas where healthcare facilities are insufficient (Rao et al., 2023). While urban regions have seen a gradual improvement in awareness levels, most rural men remain unaware of the risks and early symptoms of prostate cancer. Rao et al. (2023) highlighted that rural Indian men have minimal knowledge of the disease, often attributing symptoms such as difficulty urinating and pelvic pain to aging rather than recognizing them as potential signs of a serious medical condition. This lack of understanding delays medical consultations, often resulting in diagnoses at advanced stages.

1.2.8 - Cultural Barriers to Prostate Cancer early detection

Cultural norms and beliefs play a significant role in shaping health-seeking behaviours, particularly in conservative societies where discussing male-specific health issues is often taboo. One study of prostate cancer awareness in the Middle East, found that cultural

barriers, such as shame and fear, prevented many men from seeking medical advice until the disease had progressed to advanced stages(Sayan et al., 2024). These findings mirror those in India, where rural men are similarly reluctant to engage in conversations about their health, especially in the context of cancers affecting the reproductive organs(Sayan et al., 2024).

Loss of trust in the medical practioner's medical knowledge emerged as one of the barriers and the critical finding in a study done in Oman, the poor involvement of medical practitioners in health education could contribute to the reduced trust in them by Omani men. Embarrassment and worry regarding the screening also seem to be a significant barrier. Misbelief that the screening could affect their masculinity is another factor. Though the recognition of risk factors of prostate cancer was high, the ability to recognize symptoms of prostate cancer has been found to be low among men in Oman(Al-Azri et al., 2020).

In a multicentric study done in Jordan, Saudi Arabia and Egypt, the reasons for poor motivation to get prostate screening seems to be lack of urinary symptoms, absence of request from the medical professional for screening and fear of pain, anxiety and embarrassment arising out of the screening procedure(Arafa et al., 2012). In Sub-Saharan Africa, multiple barriers have been identified that leads to poor cancer screening including poor knowledge resulting from ignorance, misconceptions, and mistrust. Men in sub-Saharan Africa often avoid seeking medical treatment due to traditional notions of masculinity that emphasize strength and discourage appearing vulnerable(Baratediet al., 2020).

Zhang, Fear, and Ahmed (2013) found that many men are apprehensive about undergoing a digital rectal examination (DRE) because of fears associated with the procedure. These

fears include concerns about feeling stimulated or experiencing an involuntary physical response, which causes embarrassment and is sometimes linked to perceptions of homosexuality. Additionally, cultural interpretations of the DRE contribute to heightened fear and anxiety, making men less likely to seek medical help until symptoms become unmanageable(Zhang et al., 2013).

It is also highlighted that the increasing burden of prostate cancer in India is further exacerbated by sociocultural factors, such as the stigma associated with discussing male health issues. This is particularly problematic in rural areas, where conservative attitudes often prevent men from seeking timely medical help. The need for community-based interventions and educational campaigns that can break down these barriers is critical in improving awareness and outcomes(Sankarapilla et al., 2024).

Cultural barriers not only hinder awareness but also affect the willingness of men to participate in screening programs. It is emphasized that men in rural India often perceive prostate cancer screening as unnecessary or even invasive, further contributing to low participation rates in early detection programs. Overcoming these cultural barriers requires targeted interventions that are culturally sensitive and delivered by trusted community members, such as local healthcare workers or peer educators(Rao et al., 2023).

1.2.9 Policy Gaps in Addressing Prostate Cancer

The '*Gone*' *Missing* report highlights that men are significantly underrepresented in cancer policies developed by leading global health organizations. In its analysis of 28 prominent global and regional cancer policy documents, the report examined how men were addressed. It found that discussions about gendered aspects of cancer predominantly focused on women. The report concludes that there are substantial gaps in addressing

men's specific needs, experiences, and preferences in the broader context of global cancer control efforts(Wiley Clinical Healthcare Hub, 2023).

The Indian healthcare system faces several challenges in addressing the rising burden of prostate cancer. While there have been efforts to improve awareness and screening rates, there is still a significant gap in terms of comprehensive policy frameworks targeting prostate cancer, particularly in rural areas. Researchers noted that current healthcare policies do not adequately address the unique needs of men at risk of prostate cancer, especially in regions with limited healthcare infrastructure(Sankarapilla et al., 2024).

One of the most significant policy gaps is the lack of targeted outreach programs that focus on male-specific cancers. Although there are several national programs aimed at reducing cancer mortality in general, they tend to focus more on common cancers that affect both men and women, such as lung and colorectal cancer. For example, as part of the National Health Mission (NHM), India has launched a population based comprehensive cancer screening for common cancers which primarily focusses on mandatory screening for breast, cervical and oral cancer since the year 2016(Gopika et al., 2022). Prostate cancer awareness and screening efforts are often neglected, leaving many men unaware of their risk. There is a need for more gender-specific health policies that prioritize prostate cancer and ensure that men in rural areas have access to the information and services they need for early detection and treatment.

1.3 Rationale

Despite its widespread occurrence, men from low- and middle-income countries usually lack knowledge and awareness regarding prostate cancer, its associated risk factors, and

methods for early detection. This lack of understanding usually results in late diagnoses at an advanced stage of the disease which leads to poor health outcomes.

Men over the age of 40 face an increased risk of developing prostate cancer, with the likelihood significantly increasing as they get older. Yet, a considerable number of men in this age group either lack awareness of their risk or fail to prioritize regular health check-ups, including screenings for prostate cancer. The insufficient awareness and preventive practices underscore the necessity for focused research study aimed at finding the extent of awareness among men regarding prostate cancer, its risk factors, associated symptoms and early detection by screening for prostate cancer. Hence the current study was proposed.

Detecting prostate cancer early is vital, as it greatly enhances treatment effectiveness and survival chances. Unfortunately, prostate cancer often presents with no symptoms in its early stages, making awareness campaigns and proactive health-seeking behaviour essential. By focusing on men above 40 years old, this study aims to address a high-risk population that stands to benefit greatly from increased awareness and early intervention.

In summary, this research is driven by the necessity to find the knowledge gap related to prostate cancer in men over the age of 40. By examining the awareness levels about prostate cancer, its risk factors, and screening techniques among men from a rural population, this study seeks to explore the extent of awareness among men and that will enhance the planning and implementation of cancer awareness programmes specifically focussing men in India.

1.4 Study objectives

This study aims to evaluate prostate cancer awareness among men in Oddanchatram, Tamil Nadu, assessing their knowledge of risk factors, ability to recognize early symptoms, and understanding of early detection methods. It will also determine what proportion of participants currently exhibit relevant signs and symptoms, as well as measure how many have ever undergone prostate cancer screening.

1. To assess the awareness on prostate cancer among men in Oddanchatram, Tamil Nadu, including their understanding of risk factors, recognition of early symptoms and early detection of prostate cancer
2. To determine the proportion of the study population exhibiting signs and symptoms
3. To determine the proportion of study participants who ever attended any screening for prostate cancer

Chapter 2

Methodology

2.1 Study design

The study design was cross sectional, and the survey was conducted using a structured interview schedule.

2.2 Study setting

The study was conducted in all 18 wards of Oddanchatram municipality, Dindigul, Tamil Nadu, focusing on male members who fit the inclusion criteria. Oddanchatram, located in Tamil Nadu's Dindigul district, is a significant town renowned for its vibrant Gandhi Vegetable Market, one of South India's largest. Situated about 60 kilometres from Madurai, it functions as a crucial agricultural and commercial center for the region.

The town's population, as per the 2011 census, stands at 30,064, with a near-equal gender ratio of 994 females for every 1,000 males. The community is predominantly Tamil-speaking Hindus, accounting for approximately 88.93 percent of the population, alongside notable Muslim (5.73%) and Christian (5.21%) minorities. A significant portion of the population is engaged in agriculture, trade, and small-scale industries reflecting the diversity of the population.

2.3 Study Participants

The target population included men aged 40 years and above. This age group was chosen based on increasing incidences of prostate cancer among middle-aged and older men. The following inclusion and exclusion criteria apply:

Inclusion Criteria:

- Male aged 40 years and above.
- Residents of Oddanchatram, with consistent residency of at least six months.

Exclusion Criteria:

- Individuals unwilling to participate or unable to provide consent.
- Individuals who have had cancer and received treatment.

2.4 Sample Size: Estimation and Justification

Taking the 18 wards of the Oddanchatram Municipality as 18 clusters with the design effect of 1.5, to estimate the proportion of the population aware of prostate cancer, the sample size was calculated using the formula.,

$$n = [(Z_{\alpha/2})^2 \times p \times (1-p)] / d^2$$

- $Z_{\alpha/2} = 1.96$ for a 95% confidence interval
- p = estimated proportion of prostate cancer awareness based on prior literature = 10%
- d = margin of error, set at 5%
- Design effect = 1.5
- $n = (1.96)^2 \times 0.10 \times (1-0.10) / (0.05)^2 = 139 \times 1.5$
 $= 208$

As there were 18 wards to be surveyed, 208 divided by 18 gave 11.55 which was rounded up to 12 participants per ward leading to a total sample size of 216.

2.5 Sampling procedure

Given the dispersed nature of the population, systematic sampling was used to ensure randomness in the selection of participants

Assuming that every household will have a male member of age 40 or above, after a house was chosen randomly from a ward, the PI visited every 5th household from the first house till the 12th participant was found. The houses on the left sides were chosen and when it took a turn left, it was continued in the same manner without breaking the cycle. A total of 228 households were visited and there were 12 total refusals from the approached participants.

If it was found that a household had more than one eligible male individual of and above 40 years of age, a number of given to each member and one individual was chosen randomly through a random number generator explaining the process to the household members to maintain randomness in sample selection.

2.6 Study tool

Data was collected through a structured interviewer-administered questionnaire. The questionnaire covered:

1. **Demographic information:** Age, occupation, educational level, employment status, marital status and personal habits.
2. **Self-Reported Symptoms of the participants:** A preliminary verbal screening of the participants.
3. **Prostate Cancer Awareness:** Questions regarding awareness of risk factors, symptoms, and general knowledge of prostate cancer.

4. **Screening and Early Detection Awareness and practices:** questions regarding awareness about prostate cancer screening methods, and their screening practices.

A list of flash cards was prepared and carried along by the principal investigator during his visit to the field area. The flashcards contained information on the symptoms, risk factors mixed with false signs and symptoms for the veracity of the participant's response.

2.7 Data collection process

Principal investigator did the data collection independently. The PI visited the local municipal office and met with the officials informing them of the study including the entire data collection plan and nature of the study prior to the beginning of the data collection process. Informed consent forms were given and signature taken from willing participants and participant information sheets were provided to the participants explaining the topic and the nature of the study, its pros and cons and the voluntary nature. Participants were assured of confidentiality and anonymity and their personal contact information collected for future reference in case of a necessity to reconnect with them.

Initially the PI used the ODK (Open Data Kit) for data collection which was preinstalled in a mobile device and at a later on time, switched to hard copies for the ease of communication and data was entered manually into the ODK.

Given the sensitive nature of the issue, the participants exhibiting probable symptoms were advised/ suggested to visit the physicians they regularly visit or specialists like urologists in the nearby hospitals for prostate screening like DRE (digital rectal examination) and PSA (prostate specific antigen) test. Help from the local community health worker has been sought for follow up visits and further management.

All participants were informed that they may be contacted again for clarification in case of any future requirement.

Data was analysed by calculating the frequencies and percentages followed by chi square tests/Fisher's exact tests. Then prostate awareness, risk factor awareness and symptoms awareness were calculated by comparing various demographic details like age, education levels and cancer awareness.

2.8 Data analysis

Data cleaning and data analysis was done using the open-source software "R" version 4.4.1. The data arrived through the interview schedule was grouped into different categories and the frequencies and proportions was calculated for the categorical variables. Socio demographic details and the awareness level were assessed using cross tabulations and Pearson Chi-square tests or Fisher Exact test. For all the statistical tests, the level of significance, p-value <0.05 was considered for deciding the statistical significance.

2.9 Ethical committee approval

The proposed study was conducted only after obtaining the approval from Institutional Ethics Committee of Sree Chitra Tirunal Institute for Medical Sciences and Technology. Before interviewing the participants, Informed consent for participating in the study was obtained from the study participant in writing including verbal consent from those who weren't willing to sign the consent form. The informed consent was gathered only after giving the participant information sheet to the participant in local language and clarifying doubts if any regarding the study. Participants were informed of the voluntary nature of the participation, study objectives and the potential benefits and risks of the participation. The participants were told that they can either accept or refuse to

participate, and could withdraw from participation at any time of the study without any explanation. Utmost priority was given to protect the privacy and confidentiality of the participants and the collected information will not be shared with anyone, not involved in the study. At no stage, identity of the participant will be revealed.

Chapter 3

Results

As part of the data collection, the PI visited all the 18 wards after confirming the time the participants would likely be present in their houses. As the study population was male members who are of and above the age of 40, it was chosen to visit their residences during early in the morning, lunch time and evenings where the interviews on some instances went up to 9 pm.

There was not more than one male member at any given point of time in most of the houses that were visited. In the houses when there was more than one male participant was present, a number was given to each member present and a number was chosen using a random number generator and the chosen participant was interviewed.

After a house was chosen randomly, the PI visited every 5th household from the first house till the 12th participant was found. The houses on the left sides were chosen and when it took a turn left, it was continued in the same manner without breaking the cycle. A total of 228 households were visited and there were 12 total refusals from the approached participants with reasons ranging from the fear of being made fun of by his friends as he was unmarried to a few of them saying that they don't believe in any of these surveys and plain refusal to take part in the survey. The total refusal rate was 5.26 percent.

The total number of the study participants was 216. The details of the study participants and the observed findings are provided in the following sections from 3.1 to 3.5.

3.1 Sociodemographic details of the study participants

The minimum age of the study participants was 40 and the maximum age was 80. The mean age of the participants was 54 with a standard deviation of 10 years. The median age was 53 years.

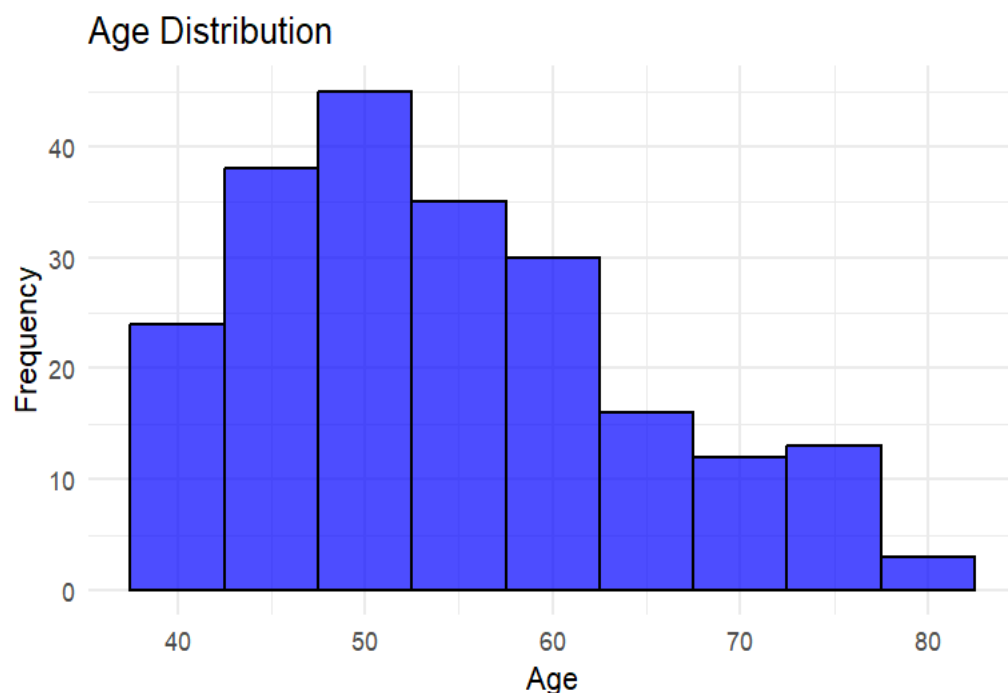


Figure 3.1 - Histogram showing the age distribution of the study participants

Further, the participant's age was categorised using 10-year intervals and the distribution is provided in Table 3.1. Table 3.1 also describes the distribution of marital status, educational level and religion of study participants.

Among the study participants, 97.2 percent of them were married. The most common education level is high school with 50 percent of the participants having attained high school or higher secondary level education. Around 7.4 percent of the participants had no formal education.

Majority of the study participants were Hindus with smaller proportions identifying as Christians, Muslims and other form of belief systems.

Table 3.1 - Demographic details of the participants

Demographic details	N = 216, n (%)
Age group	
40-49	75 (34.72%)
50-59	78 (36.12%)
60-69	38 (17.59%)
70+	25 (11.57%)
Marital status	
Single	6 (2.78%)
Married	210 (97.22%)
Education level	
No formal education/qualification	16 (7.41%)
Primary (1-5)	34 (15.74%)
High School (6-10)	89 (41.20%)
Higher Secondary (11-12)	20 (9.26%)
Under graduation	26 (12.04%)
Post-graduation	19 (8.79%)
Others	12 (5.56%)
Religion	
Hindu	174 (80.56%)
Muslim	9 (4.16%)
Christian	29 (13.43%)
Others	4 (1.85%)

Table 3.2 describes a summary of the working status, socio-economic details, and social category of the study participants.

Table 3.2- Socio-economic details of study participants

Variables	N = 216, n (%)
Working Status at present	
Skilled employee	39 (18.05%)
Semi-skilled employee	34 (15.74%)
Unemployed	7 (3.25%)
Self-employed	74 (34.26%)
Farmer	22 (10.18%)
Retired	21 (9.73%)
Others	18 (8.33%)
Prefer not to say	1 (0.46%)
Annual income	
<=144,000	56(25.93%)
144,001 - 355,806	55(25.46%)
355,807 - 567,612	54 (25%)
567,613 and above	51 (23.61%)
Social category	
General category	3 (1.39%)
OBC	154 (71.29%)
SC	59 (27.32%)

It shows that majority of the participants were self-employed (34.2%), followed by skilled employees (18.0%) and semi-skilled employees (15.7%). A small percentage of the participants were unemployed (3.2%). Farmers constituted around 22 (10.2%) in

numbers, retired (9.7%). Some of the study participants fall under "Others" category (8.3%) or chose not to disclose their status (0.5%). Most individuals belong to the OBC (Other Backward Classes) category (71%) followed by a significant portion were from the SC (Scheduled Caste) category (27%) with the general category participants forming a small minority.

Table 3.3 presents the distance to the nearest healthcare facility services for the study participants.

Table 3.3 - Distance of the nearest healthcare facility for the participants

Healthcare distance	N=216 (n, %)
<1Km	127 (58.79%)
1 - 3 Km	66 (30.56%)
3 – 5 Km	11 (5.09%)
> 5 Km	12 (5.56%)

The majority of the participants that is 59 percent live within 1 kilometre and 31 percent had a healthcare facility within 1-3 kilometres away distance from a healthcare facility which signifies that there is good access to healthcare services.

Table 3.4 explores the personal habits like tobacco and alcohol consumption of the study participants.

Table 3.4 - Personal habits of the participants

Personal habits	N = 216
Tobacco use in the past	111 (51.38%)
Current tobacco use	58 (26.85%)
Types of tobacco use (current, N=216)	
Cigarette	42 (19.44%)
Beedi	20 (9.26%)
Snuff	6 (2.78%)
Betel quid	5 (2.31%)
Others	8(3.70%)
Ever use of tobacco (tobacco use in the past or present)	122 (56.48%)
Alcohol use in the past	105 (48.61%)
Current alcohol use	62 (28.70%)
Ever use of alcohol (alcohol use in the past or present)	106 (49.07%)

The ever use of tobacco was 56.5 percent. Cigarettes are the most common form of tobacco consumed, followed by beedi. The use of other tobacco products such as snuff, betel quid are relatively low but still prevalent. Ever use of alcohol was 49 percent.

Overall, 22.69 percent of the participants have reported of not using alcohol ever while it was 21.76 percent for tobacco.

Table 3.5 presents the types of farming activities that were undertaken by the study participants who were farmers and the farming practice like the types of cultivation, pesticide usage. Ten percent (22 in number) of the participants were farmers, among them the majority (81.8%) are involved in cultivation, which refers to growing crops like paddy and corn, and the same percentage involved in horticulture as well. There is widespread use of conventional pesticide, insecticide, herbicide and fungicides by the farmers with a small portion (18.18%) using organic repellents and manures (Table.3.5).

Table 3.5- Farming activities of study participants who were farmers

Farming activities	N = 22 (n, %)
Type of activity	
Cultivation	18 (81.81%)
Horticulture	18 (81.8%)
Livestock	2 (9.09%)
Others	6 (27.27%)
The types of pesticides used (N=22)	
Insecticide	18 (81.81%)
Herbicide	17 (77.27%)
Fungicide	16 (72.72%)
Organic	4 (18.18%)

Table 3.6 presents and the total time spent on pesticide application and the type of machinery used along with the use of personal protective equipment by the farmer participants. Majority of the participants who were farmers used pesticides occasionally with monthly usage closely followed by. Most of the farmers spent 1-4 hours applying

pesticides on an average with majority of them using (73%) battery powered machines to spray pesticides. Nearly 70 percent of farmers never use any protective equipment (Table.3.6).

Table 3.6- Details of frequency of use, and time of application of pesticides by the participant farmers

Pesticide Frequency	N=20 (n, %)
Monthly	6 (27.27%)
Occasionally	8 (36.36%)
Rarely	2 (9.37%)
Weekly	6 (27%)
Pesticide Application Time	
<1 hour	3 (14%)
1 – 2 hours	8 (36%)
2 – 4 hours	6 (27%)
More than 4 hours	5 (23%)
Pesticide Machine Type	
Battery powered	16 (73%)
Manually operated	6 (27%)
Use Protective Equipment	
Always	7 (32%)
Never	10 (45%)
Sometimes	5 (23%)

3.2 Cancer Awareness among study participants

This section presents the study participant's general cancer awareness levels along with the knowledge about the risk factors and warning signs that might indicate cancer. This section also provides insights into the awareness among men of the most common cancers that are prevalent among men and women both.

Table 3.7- General cancer awareness among study participants

General cancer awareness		N = 216
Have you come across information on diseases like cancer?		
No, I am not familiar with it		20 (9.25%)
Yes, I am familiar with it		86 (39.82%)
I have heard it but don't know much about it		110 (50.93%)
Do you believe Cancer is Preventable?		
Yes		68 (31.48%)
Yes, but not all cancers are preventable		26 (12.04%)
Yes, some are preventable		15 (6.94%)
Not		26 (12.04%)
Not sure		81 (37.5%)

Half of the participants have heard of cancer but they lacked detailed knowledge about it while 40 percent of them were familiar with cancer indicating reasonable level of awareness. Nearly one third (38%) of the respondents were unsure whether cancer is preventable or not. Thirty one percent of the participants believed that cancer is preventable.

The participants were provided with options that included true and false warning signs of cancer to identify inconsistent responses and potential understandings and misconceptions regarding cancer. The results are provided in Tables 3.8 to 3.12.



Table 3.8- Awareness of participants about the warning signs of cancer

Which of the following do you think could be a warning sign for cancer?	N = 216 (Answered yes, n %)
Pain	118(54.62%)
Lump/Swelling	108 (50%)
Weight loss	84 (38.88%)
Loss of appetite	60 (27.77%)
Fatigue	59 (27.31%)
Bleeding	50 (23.14%)
Sore does that does not heal	46 (21.29%)
Difficulty swallowing	41(18.98%)
Cough hoarseness	36 (16.66%)
Generally unwell	32 (14.81%)
Bowel bladder changes	24(11.11%)
Mole changes	15 (6.94%)
Easy bruising	4 (1.85%)
Frequent Yawning	3 (1.38%)
No symptoms identified by the participants	73(33.79)

Pain was the most commonly recognized warning symptom of cancer by 54.62 percent of the participants followed by lump/swelling by 50 percent. Weight loss (38.88%) loss of appetite (27.77%) and fatigue (27.31%) were identified by moderate proportion of the participants. One third (33.79%) of the participants were unable to identify any of the warning signs presented (Table3.8).

Table 3.9 – False warning signs chosen by the participants

Warning signs of cancer - False options	N = 216
Frequent nosebleeds	24 (11.11%)
Tingling toes	6 (2.77%)
Dry hands	2 (0.92%)
Ringling in ears	2 (0.92%)

A small proportion of participants incorrectly identified frequent nosebleeds followed by tingling toes, dry hands and ringling in ears as a cancer warning sign.

Smoking and alcohol consumption were widely identified as risk factors for cancer by 87.03 percent and 63.42 percent of the participants respectively. Genetics, poor fruits and vegetables consumption, radiation/pollution, consumption of red/processed meat were identified as risk factors by the participants. Nearly 14 percent of the participants were unaware of any of the cancer risk factors. The risk factors like physical inactivity (5.55%), overweight (4.62%), infections (3.24%), and sunburn (1.38%) are poorly recognized, despite them known to cause cancers (Table.3.10).

Table 3.10 - Cancer risk factors recognized by the study participants

What is the factor/behaviours that might cause cancer?	N = 216
Smoking cigarettes	188 (87.03%)
Drinking alcohol	137 (63.42%)
Genetics	46 (21.29%)
Less or no consumption of fruits or vegetables	42 (19.44%)
Exposure to radiation and pollution	39 (18.05%)
Consumption of red and processed meat	33 (15.27%)
Old age	30 (13.88%)
Second hand smoke	26 (12.03%)
Physical inactivity	12 (5.55%)
Overweight	10 (4.62%)
Infections	7 (3.24%)
Multiple sexual partners	5 (2.31%)
Sunburn	3 (1.38%)
Age at marriage	1(0.46%)
No risk factors were recognised by the participants	30(13.88%)

Table 3.11 - False cancer risk factors chosen by the study participants

Cancer causes	N = 216
Regular spicy food consumption	43 (19.90%)
Using Mobile phone while charging	20 (9.25%)
Skipping breakfast	17 (7.87%)
Synthetic clothes	4 (1.85%)
Wearing tight shoes	2 (0.92%)

A notable proportion (19.90%) identified regular spicy food consumption as a cancer risk factor, which could indicate poor clarity about actual cancer causes along with using a mobile phone while charging (9.25%) and skipping breakfast (7.87%) as causes of cancers (Table.3.11).

Table 3.12 and figure 3.13 presents the awareness of the study participants of the most common cancers among women and women specific cancers alone.

Table 3.12–Participant’s responses regarding common cancers among women

Can you name a few cancers that are common among Women?	N = 216
Breast cancer	163 (75.46%)
Cervical cancer	103 (47.68%)
Uterus cancer	65 (30.09%)
Others	34 (15.74%)
Lung cancer	12 (5.55%)
Oral cancer	11 (5.09%)
Ovarian cancer	10 (4.62%)
Don’t know	43 (19.90%)

Breast cancer (75.46%) is the most widely recognized cancer among females identified by the male participants, followed by cervical cancer (47.68%) and uterus cancer (30.09%). Cancers like ovarian cancer (4.62%), lung cancer (5.55%), and oral cancer (5.09%) are poorly recognized.

When considering the female specific cancers such as breast, uterus, ovary and cervix, it is observed that 21.4 percent of men (n=46) are not aware of any one of these four cancers. Nearly 22 percent recognised at least one among the four (n=48), and nearly 52% identified two to three cancers among the four (n=112) and nearly 5% identified all four cancers (n=10) (Figure 3.2).

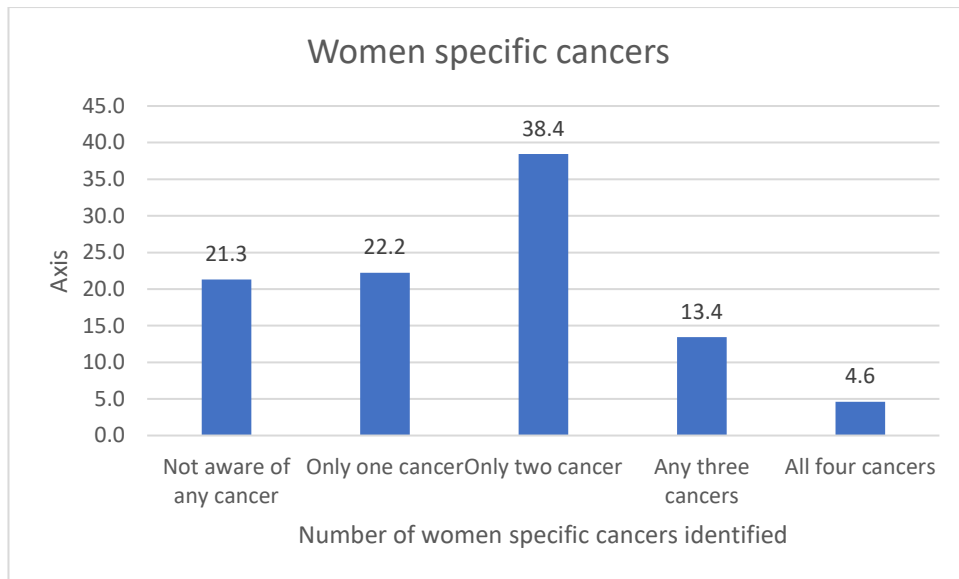


Figure 3.2 –Number of women specific cancers identified by the study participants

Table3.13 Common cancers of men identified by the participants

Can you name a few cancers that are common among Men?	N = 216
Oral cancer	155 (71.75%)
Lung cancer	102 (47.22%)
Others	72 (33.33%)
Stomach cancer	69 (31.94%)
Oesophageal cancer	54 (25%)
Colorectal cancer	49 (22.68%)
Prostate cancer	17 (7.8%)
Don't know	41 (18.98%)

Oral cancer (71.75%) and lung cancer (47.22%) are the most widely recognized cancers among men. Stomach cancer (31.94%), oesophageal cancer (25%), and colorectal cancer (22.68%) are recognized by a moderate proportion of the participants.

Prostate cancer, a major cancer among men, is poorly recognized (7.87%). A significant proportion (18.98%) is unaware of any cancers that are common among men.

3.3 Prostate cancer awareness among the study participants

In this section of the study, the overall awareness of the participants regarding prostate cancer was assessed and the results are as follows.

Table 3.14 – Study participants’ awareness of Prostate cancer.

Prostate awareness (Answered yes)	N = 216
Do you know of an organ in men called the prostate?	32 (15%)
Do you know a cancer called prostate cancer?	25 (12%)
Have you or anyone of your relatives ever had prostate cancer?	2 (0.9%)
Have you ever heard that prostate cancer can be detected at an early stage for better diagnosis?	11 (5.1%)
Aware about Prostate specific antigen test (PSA test)	2 (0.9%)
Aware about Digital rectal examination (DRE)	1 (0.5%)

Awareness of the prostate gland (15%) and prostate cancer (12%) is very low, indicating a significant gap in knowledge about men's health among the participants. Only 0.9 percent of the participants reported having a family history of prostate cancer which might be a reason for the low awareness of prostate cancer. Only 5 percent of the study participants were aware that prostate cancer can be detected at an early stage for better diagnosis and treatment outcomes.

Table 3.15 - Participants responses on risk factors that may increase the chance of getting prostate cancer

Risk factors	N = 216
Don't know any risk factors	197 (91.2%)
Age	14 (6.48%)
Family history	13 (6.01%)
Exposure to chemicals	12 (5.55%)
Smoking	10 (4.62%)
Diet	8 (3.7%)
Keeping smartphones in pant pockets	8 (3.7%)
Sedentary lifestyles	5 (2.31%)
Wearing tight clothing	4 (1.85%)
Obesity	3 (1.38%)

The vast majority (91.2%) are unaware of any risk factors for prostate cancer, indicating a severe gap in public health knowledge. Even among those who are aware, the recognition of established risk factors like age (6.48%), family history (6.01%), and obesity (1.38%) is very low. Some participants incorrectly identified smartphone use (3.7%) and tight clothing (1.85%) as risk factors for prostate cancer. The data reveals a severe lack of awareness about prostate cancer risk factors.

Table 3.16 presents the study participant's awareness on symptoms associated with prostate cancer.

Table 3.16 - Participants responses regarding the possible symptoms of prostate cancer

Can you name symptoms of prostate cancer?	
Chosen options	Count
Don't know any symptoms	192 (88.88%)
Weak or interrupted urine flow	12(5.55%)
Difficulty starting urination	12 (5.55%)
No	10(4.62%)
Frequent urination at night	8(3.70%)
Painful or burning urination	8(3.70%)
Back, hip or pelvic pain	6(2.77%)
Trouble emptying bladder completely	6(2.77%)
Blood in urine or semen	5(2.31%)
Painful ejaculation	4(1.85%)
Frequent masturbation	1(0.46%)
Regular spicy food consumption	1(0.46%)

The vast majority (88.88%) of the participants are unaware of any symptoms of prostate cancer. Even among those who are aware, the recognition of established symptoms like weak urine flow (5.55%), difficulty starting urination (5.55%), and frequent urination at night (3.70%) is very low.

Table 3.17 explores the awareness levels of the participants of the age at which men are at the risk of developing prostate cancer.

Table 3.17 - Awareness on age at risk for prostate cancer

At what age do you think men are typically at risk of developing prostate cancer?	N = 216
Middle age	5 (2.3%)
Old age	15 (6.9%)
Not sure	14 (6.5%)
Don't know	182 (84%)

Eighty four percent of the participants were unaware of the age at risk for developing prostate cancer. Around 6.9 percent of the study participants correctly identified old age as a risk period for prostate cancer, while 2.3 percent mentioned middle age. Nearly 6.9 percent of the participants were not sure of the age at which men are at the risk of getting prostate cancer.

3.4 - Self-Reported Symptoms of the participants

The table below presents data on the prevalence of various signs and symptoms among a sample of 216 individuals. These symptoms may be suggestive of potential prostate-related issues. The most commonly reported symptom is frequent urination (9.3%), followed by fatigue (7.4%). Other symptoms, such as blood in urine or semen (0.5%), were less frequently observed. Understanding the distribution of these symptoms can help in identifying health concerns and guiding further investigations.

Table3.19 - Participants exhibiting prostate related signs and symptoms

Signs and symptoms	N = 216
Fatigue	16 (7.4%)
Urination Difficulty	4 (1.9%)
Incomplete Urination	6 (2.8%)
Frequent Urination	20 (9.3%)
Blood In Urine and Semen	1 (0.5%)
Erection Difficulty	6 (2.8%)
Pain while urinating	2 (0.9%)
Pain in hips and back	3 (1.4%)

When considering the participants who reported symptoms that were specific to prostate conditions, symptoms like frequent urination was reported by 9.3 percent of the population while incomplete urination was reported by 2.8 percent followed by difficulty urinating was reported by 1.9 percent and blood in urine or semen was reported by 0.5

percent of the study participants and, pain during urination was reported by 0.9 percent of them.

The following table presents data on prostate-specific symptoms reported by the participants of the study. It categorizes the participants based on the number of symptoms they reported, ranging from no symptoms to up to six symptoms. The table provides insights into the frequency of symptom reporting focussing across different symptoms specific to prostate cancer.

Table 3.20 – Frequency of prostate specific symptoms reported by the study participants

Participants reported prostate specific symptoms	Frequency
Participants who didn't report any symptoms	191 (88.42%)
Number of participants who reported at least one symptom	15 (6.94%)
Number of participants who reported two symptoms	8 (3.70%)
Number of participants who reported three symptoms	1 (0.46%)
Number of participants who reported four symptoms	0 (0%)
Number of participants who reported five symptoms	1 (0.46%)
Number of participants who reported six symptoms	0 (0%)

The majority of participants (191 out of 216) did not report any prostate-specific symptoms. A smaller proportion (6.94%) reported one or more symptoms.

3.5 –Practices of participants regarding the Prostate health and PSA testing

This section looks into the study participants prostate health awareness by examining their past history of visits to the physicians or urologists for prostate related problems. The participants were asked whether they were given any information on prostate specific antigen (PSA) test and their respective responses recorded as presented below.

Table 3.21 -Participant's practices regarding prostate health and PSA testing

Practices	N=216, (n, %)
Have you ever gone to the physician and/or urologist for prostate problems?	
No	209 (97%)
Yes, Physician	4 (1.9%)
Yes, Urologist	3 (1.4%)
Did the physician /urologist tell you about the PSA test?	
	0 (NA%)
Have you ever had PSA test?	
	1 (0.5%)
If yes, what were the reason?	
Prostate hypertrophy	1 (0.5%)

Table 3.22–Participant’s Awareness and Information Needs Regarding Prostate Cancer, PSA Testing, and Digital Rectal Exam (DRE)

Have you ever received information on prostate cancer before? (yes)	4 (1.9%)
Do you need more information about prostate cancer?	141 (65%)
Do you feel you need more information about the PSA test?	144 (67%)
Do you feel you need more information about DRE.	145 (67%)

Almost none of the study participants (97%) have ever visited a physician or urologist for prostate problems. Only 0.5 percent of the sample has undergone a PSA test, and none of the participants have received any sort of information about the PSA test. A majority of the sample (65-67%) expressed a need for more information about prostate health, PSA testing, and DRE.

Section 3.6 – Factors associated with prostate cancer awareness

In this section, we explored the characteristics of participants that may be linked to prostate cancer awareness. Specifically, we looked at ‘**Awareness about prostate cancer**’ (whether people know about the disease), ‘**Awareness of risk factors**’ (if people understand at least one risk factor that increase the chances of getting prostate cancer), and ‘**Awareness of symptoms**’ (whether people recognize at least one symptom of prostate cancer) and how these outcomes relate to factors such as: age group, education level, ever use of alcohol and tobacco use, and general cancer awareness.

Table 3.23 presents a comparison of various demographic and lifestyle factors with prostate cancer awareness

Table 3.23 Association between prostate cancer awareness and demographic, lifestyle, and cancer Knowledge Factors

Prostate Awareness	No N = 184	Yes N = 32	Chi square test Statistic	p- value
Age cat			1.6	0.4
40-49	61 (81%)	14 (19%)		
50-59	67 (86%)	11 (14%)		
Above 60	56 (89%)	7 (11%)		
Educational category			34.1	<0.001
no/primary	48 (96%)	2 (4.0%)		
high school	85 (96%)	4 (4%)		
higher secondary or above	51 (66%)	26 (34%)		
Ever used alcohol			4.78	0.029
No	88 (80%)	22 (20%)		
Yes	96 (91%)	10 (9%)		
Ever used tobacco			9.73	0.002
No	72 (77%)	22 (23%)		
Yes	112 (92%)	10 (8.2%)		
Cancer information				0.3
Not familiar	19 (95%)	1 (5.0%)		
Familiar	165 (84%)	31 (16%)		

The findings include No significant association was found between age categories and prostate awareness ($p = 0.4$). Awareness levels were similar across age groups. A highly

significant association was found between education and prostate awareness ($p < 0.001$). Those with higher secondary education or above had much higher awareness (34%) compared to those with no/primary (4%) or high school (4.5%) education. Non-drinkers (20%) had higher awareness than alcohol users (9.4%). Non-tobacco users (23%) had much higher awareness than tobacco users (8.2%). Awareness was slightly higher among those familiar with cancer information (16%) vs. not familiar (5%), but the difference was not statistically significant. Age and general cancer familiarity did not significantly influence awareness.

Table 3.24 Awareness of prostate cancer risk factors and association with education, cancer knowledge, and lifestyle factors

Awareness of at least one Risk	No	Yes	Statistic	p-value
Factors of Prostate Cancer	N = 196	N = 20		
Age category			3.48	0.2
40-49	68 (91%)	7 (9.3%)		
50-59	68 (87%)	10 (13%)		
Above 60	60 (95%)	3 (4.8%)		
Education category				<0.001
No/primary	49 (98%)	1 (2.0%)		
High school	86 (97%)	3 (3.4%)		
Higher secondary or above	61 (79%)	16 (21%)		
Ever used alcohol			0.360	0.5
No	98 (89%)	12 (11%)		
Yes	98 (92%)	8 (7.5%)		
Ever used tobacco			0.360	0.5
No	79 (84%)	15 (16%)		
Yes	117 (96%)	5 (4.1%)		
Cancer information				0.7
Not familiar	19 (95%)	1 (5.0%)		
Familiar	177 (90%)	19 (9.7%)		

The results showed no significant association between age and awareness ($p = 0.2$). While slight variations existed across age groups 9.3 percent awareness in 40-49-year-olds, 13 percent in 50-59-year-olds, and 4.8 percent in those above 60 meaning the differences were not statistically meaningful. A highly significant association was found between

education level and awareness ($p < 0.001$). Individuals with higher secondary education or above had markedly higher awareness (21%) compared to those with no/primary (2%) or high school education (3.4%). neither alcohol ($p = 0.5$) nor tobacco use ($p = 0.5$) had a significant association with risk factor awareness. However, a notable trend emerged: tobacco non-users (16% aware) had higher awareness than users (4.1%). Prior knowledge about cancer did not significantly influence awareness ($p = 0.7$). Both groups—those familiar (9.7% aware) and unfamiliar (5% aware) with cancer information—showed low recognition of prostate cancer risks.

Table 3.25 Awareness of Prostate Cancer Symptoms and it's association with age, education, tobacco use, cancer knowledge

Awareness of at least one symptom PC	No	Yes	p-value
	N = 200	N = 16	
Age category			0.3
40-49	71 (95%)	4 (5.3%)	
50-59	69 (88%)	9 (12%)	
Above 60	60 (95%)	3 (4.8%)	
Education category			<0.001
No/primary	50 (100%)	0 (0%)	
High school	86 (97%)	3 (3.4%)	
Higher secondary or above	64 (83%)	13 (17%)	
Ever used alcohol			0.7
No	101 (92%)	9 (8.2%)	
Yes	99 (93%)	7 (6.6%)	
Ever used tobacco			0.008
No	82 (87%)	12 (13%)	
Yes	118 (97%)	4 (3.3%)	
Cancer information			>0.9
Not familiar	19 (95%)	1 (5.0%)	
Familiar	181 (92%)	15 (7.7%)	

This table examined factors associated with awareness of prostate cancer symptoms among participants, who demonstrated awareness of at least one symptom. The analysis revealed several significant associations.

The analysis showed no statistically significant association between age and symptom awareness ($p=0.3$). Awareness levels were consistently low across all age groups. While the 50-59 age group showed slightly higher awareness, the differences were not significant. A highly significant relationship emerged between education level and symptom awareness ($p<0.001$). Striking disparities were observed as followed No/primary education showed 0 percent awareness, high school educated showing 3.4 percent awareness and higher secondary or above showing 17 percent awareness. Current analysis revealed a significant relationship between tobacco use and symptom awareness ($p=0.008$) with non-tobacco users showing 13 percent awareness and tobacco users showing 3.3 percent awareness. Neither alcohol use ($p=0.7$) nor general cancer familiarity ($p>0.9$) demonstrated significant associations with symptom awareness.

Table 3.26 Socio-Demographic distribution of prostate cancer early detection awareness

The table provides data on eleven study participants who answered "Yes" to the question regarding their knowledge that prostate cancer can be diagnosed early for better prognosis.

Sl.no	Prostate cancer early detection knowledge	age	Education level	Working status
1	Yes	45	under graduation	self employed
2	Yes	54	postgraduation	skilled
3	Yes	70	postgraduation	retired
4	Yes	51	high school	self employed
5	Yes	65	high school	self employed
6	Yes	72	under graduation	retired
7	Yes	56	postgraduation	skilled employee
8	Yes	42	postgraduation	others
9	Yes	55	under graduation	self employed
10	Yes	51	postgraduation	self employed
11	Yes	49	postgraduation	skilled employee

This table presents data from 11 individuals who possess knowledge about prostate cancer early detection, capturing their age, education level, and working status. The respondents range from 42 to 72 years old, with most falling in the 45-65 age group. Self-

employed (5/11) and skilled employees (3/11) are most common, followed by retired (2/11) and others (1/11). All respondents had at least a highschool education, with 82 percent (9/11) holding undergraduate or postgraduate degrees. The data reveals that higher education dominates among individuals with prostate cancer early detection knowledge, with postgraduates comprising 6 out of 11 respondents (55%), undergraduates accounting for 3 (27%), and high school graduates representing only 2 individuals (18%).

Chapter 4

Discussion

This descriptive study provides a comprehensive analysis of cancer awareness, with a specific focus on prostate cancer among 216 male participants aged forty and above in Oddanchatram Municipality, Dindigul district, Tamil Nadu. The research examines participants' knowledge of prostate cancer, including its signs, symptoms, risk factors, and screening methods. A systematic sampling approach was applied, with households visited in person to identify eligible participants. Overall, the study revealed around 15 percent of the participants were aware of prostate as an organ and 12 percent were aware of prostate cancer. Just 9.3 percent of the participants knew at least one risk factor and a mere 7.4 percent of them could identify at least a symptom. Higher education was a dominant trait among those with early detection knowledge.

4.1 The study participants

The study begins with a detailed sociodemographic review of the participants. The average age of the study group was in the mid-50s, with the majority of the study participants being married. Educational attainment appears to be relatively high, with many participants having at least high school education. Moreover, the data indicates that a substantial portion of the participants belong to Other Backward Classes (OBC) and Scheduled Castes (SC), which may correlate with differing levels of access to healthcare and health-related information. One of the major observations was that there was a general difference among the study participants. The other backward class (OBCs) members were land owners and self-employed and were eager to know more about prostate cancer, its risk factors, symptoms and screening methods while those from the

scheduled caste community were daily wage labourers and had least bit of interest in getting to know about cancer including prostate cancer except few who were genuinely interested in learning about cancer.

One of the participants was surprisingly asking the PI if it is “**prostitute cancer**” signifying poor awareness of the prostate as an organ or prostate cancer. Majority of the participants mistook testicles as prostate gland and were surprised to hear that it’s a different organ within the male reproductive system which they didn’t know of. Many men interviewed expressed minimal knowledge about cancer in general, often prioritizing work and income over health concerns. Some even viewed discussing health issues as taboo or unmasculine, reinforcing barriers to proactive healthcare engagement. The elderly participants

One often repeated statement from the majority of the participants was that, if you are saying smoking and alcohol can cause cancer then why is it that many people, they know who had been diagnosed with cancer have never touched alcohol or any tobacco product ever but those who smoke and drink and indulge in all sorts of habits are healthy with no serious illnesses diagnosed. There have been instances where the study participants didn’t even want to hear the term cancer or wanted to learn about it and then some participants didn’t have any knowledge of cancer or the causes of it.

The PI found that many of the study participants were well aware of the female specific cancers like breast cancer and cervical cancer which signifies the effectiveness and reach of the government run screening programs and education campaigns focussed on women. There was a genuine amount of interest among the surveyed men and the PI was able to take classes, explaining the anatomy and functions of what a prostate gland is and what is prostate cancer is and the preventive and screening methods. This proves that if there is a

genuine and focussed effort from the authorities, people are ready to listen and learn health related information. These demographic insights are crucial as they reveal how cultural, social, and economic factors shape health behaviours

4.2 Cancer Awareness and Knowledge Gaps

Only 15 percent of participants knew about the prostate gland, and 12 percent were aware of prostate cancer, particularly a low level of familiarization with prostate cancer was observed among the study participants. Only around 12 percent of the study population had any awareness of the disease, and a smaller fraction (0.9%) reported a family history of prostate cancer and related ailments. These differences may result from distinct study population characteristics and prostate cancer awareness. Additionally, over 88 percent of participants were unaware of the risk factors or early symptoms associated with prostate cancer, highlighting a critical gap in public health education focused on men. While most participants lived near healthcare facilities - suggesting physical accessibility, the findings indicate alarmingly low cancer awareness and awareness of prostate cancer particularly. Many men interviewed expressed minimal knowledge about cancer in general, often prioritizing work and income over health concerns. Some even viewed discussing health issues as taboo or unmasculine, reinforcing barriers to proactive healthcare engagement.

This lack of awareness is concerning, as early detection and intervention improves the treatment outcomes of prostate cancer. The study reveals that recognizing risk factors and having an understanding of what symptoms to look out for are important in prompting individuals to seek timely medical advice. The low awareness rates suggest that, current public health information strategies or community outreach programs are either insufficiently reaching this demographic or are not adequately tailored to resonate with their specific needs of men.

4.3 Health Practices and Preventive Behaviours

The findings reveal a significant inadequacy in proactive health-seeking behaviours among the study participants. Nearly every one of the participants (97%) had never visited a physician or a urologist for any prostate-related issues. Moreover, merely 0.5 percent of the study participants had ever undergone a prostate-specific antigen (PSA) test, a key screening tool for early detection of prostate cancer. This indicates that despite physical accessibility to healthcare services, there remains a profound disconnect between access and utilization. Cultural factors, limited awareness, or potential economic and logistical barriers might be discouraging men from engaging in preventive health practices. The data thus underscores an urgent need for targeted initiatives aimed at promoting regular health checkups and increasing the use of screening methods.

4.4 Key Influencing Factors

Education, tobacco and alcohol as key factors influencing symptom awareness, while age and general cancer knowledge play minimal roles.

This analysis highlights education and general cancer knowledge as the most critical factors in understanding prostate cancer risks, while downplaying the role of age and lifestyle behaviours. General cancer familiarity matters: Those who understand cancer basics are far more likely to know prostate-specific risks factors. Educational attainment is critical for recognizing prostate cancer symptoms, likely due to better health literacy. General cancer knowledge is strongly linked to symptom awareness, underscoring the need for public health campaigns.

The dataset confirms that prostate cancer early detection knowledge is concentrated among educated, professionally engaged men. To improve population-wide awareness,

interventions must address education gaps, occupational disparities, and age-specific barriers. This demonstrates a strong correlation between advanced education levels and awareness of prostate cancer screening, highlighting the need for targeted health education initiatives among populations with lower educational attainment

4.5 Strategies for Improvement and Future Implications

Improving prostate cancer awareness and screening rates in rural India will require a multifaceted approach that addresses both cultural and systemic barriers. Community-based education programs have been shown to be effective in raising awareness and promoting early detection of prostate cancer. Studies suggest that involving local healthcare workers and community leaders in educational campaigns can help overcome cultural barriers and increase trust in healthcare services(Rao et al., 2023).

In addition to community-based interventions, public health messaging through local media and technology can help reach a broader audience. Researchers argue that leveraging social media and other digital platforms can be an effective way to disseminate information about prostate cancer, particularly among younger men who may be more likely to engage with online content(Sayan et al., 2024). However, these efforts must be supported by stronger policy frameworks that ensure equitable access to screening services and treatment options.

To improve prostate cancer awareness and early detection in rural populations, more education, screening facilities, and information/health promotion initiatives are required.

Strengths and limitations

1. The study findings are generalisable to similar populations in Tamil Nadu as the study ensures a representative group from the population with adequate coverage.
2. Reliance on participant recall may over/underestimate awareness.

4.6 Conclusion and recommendations

In summary, this study underscores the critically low prostate cancer awareness, particularly among less-educated and high-risk populations, and highlights the urgent need for targeted, community-driven interventions. The findings reveal that general health knowledge does not automatically translate to prostate cancer awareness, emphasizing the necessity for culturally adapted education and accessible screening programs. To address these issues, a multi-pronged approach is recommended: integrating prostate health messaging into existing community platforms (e.g., religious gatherings, workplaces), simplifying health communication using local languages and culturally sensitive materials and visual aids, and leveraging frontline health workers to disseminate information on basic screening services leveraging their connect with the local population. Additionally, high-risk groups, such as tobacco users and older men, require focused engagement through tailored campaigns and incentives. By prioritizing practical, low-cost strategies—like training local community leaders and health workers to disseminate information or using mobile units for rural outreach, this study advocates for actionable steps to improve screening and early detection and reduce prostate cancer incidents and the associated social and economic burden. Sustained efforts must bridge the divide between health systems and underserved populations, ensuring equitable access to life-saving knowledge and care.

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Annexures

ANNEXURE 1 - Participant Information Sheet (English)

Introduction:

Hello, I am Dr. Lenin A, currently enrolled in the Master of Public Health Program at the Achutha Menon Centre for Health Sciences Studies, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, Kerala.

As part of my academic research, I am conducting a survey titled ***“Assessing prostate cancer awareness among the adult male population: A cross-sectional survey in Oddanchatram Municipality, Dindigul, Tamil Nadu”***. You are invited to participate in this study as your valuable inputs and will contribute significantly to understand the level of prostate cancer awareness among common people and it will help improve prostate cancer prevention efforts and strategies.

This study aims to assess the level of awareness regarding prostate cancer, including risk factors, symptoms, and screening practices among men in the region. The findings of the study will help develop programs to improve prostate cancer education and prevention in the community.

Please take sufficient time to understand the following information in this information sheet. If you have any words or information that you don't understand, please feel free to ask me these and clarify. You can ask any question related to this study.

What Will Your Participation Involve?

If you agree to participate, you will be asked to answer the survey that will take approximately 30-40 minutes.

Voluntary Participation:

Your participation is completely voluntary. You are free to choose whether or not to participate, and you may withdraw at any time if you wish to do so.

Risks:

There are no anticipated risks associated with this study. However, if you feel uncomfortable answering any questions, you are free to skip them.

Benefits:

While there are no direct benefits to you, your participation will contribute to important research that could help improve prostate cancer awareness and health programs in the community.

Confidentiality:

All information you provide will be kept confidential. Your responses will be anonymized and no unique identifiers will be used in any reports or publications published as a result of this study. Your identity will not be disclosed at any stage. Each participant will be assigned a respondent identification number, which will help maintain the confidentiality of the data collected. Access to this respondent identification number will only be reported to the principal investigator's guide who will provide assistance in analysing the data.

Contact Information:

If you have any questions about the study, you may contact me at

Dr. Lenin A, [9751004633](tel:9751004633)/lenin@sctimst.ac.in

Dr. Jissa VT, Scientist D, SCTIMST. 0470-2-524270/jissa@sctimst.ac.in

Dr. Srinivas G, Member Secretary, IEC, SCTIMST, & Scientist - G, Department of Biochemistry, SCTIMST, (email iec.mem.sec@sctimst.ac.in). 04712524689

Thank you for considering your participation in this important research.

ANNEXURE 2 - INFORMED CONSENT FORM

I have been invited to participate in the thesis titled “Assessing prostate cancer awareness among the adult male population: A cross-sectional survey in Oddanchatram Municipality, Dindigul, Tamil Nadu”. I have read the information provided regarding the study, or it has been read to me. I have had the opportunity to ask questions about it and the questions I have been asked have been answered to my satisfaction.

I am aware that there is minimal risk in participating in the study.

I understand there is no immediate direct benefit in the study.

I know I will not be incentivized for the participation.

I understand my personal information will remain confidential.

I know that I can withdraw my consent at any point of the study

I consent voluntarily to be a participant in this study.

Participant ID : Name of the participant:

Mobile Number: Signature :

Place:

Date:

I confirm that the participant was allowed to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent and the consent has been given freely and voluntarily.

Name of the Researcher:

Date:

Signature:

ANNEXURE 3 -Interview schedule – English

“Assessing prostate cancer awareness among the adult male population: A cross-sectional survey in Oddanchatram Municipality, Dindigul, Tamil Nadu”

Ward No –

Household No -

Participant ID- Format (Ward no/HH no/participant no)

Section-1: Demographic information

I would now like to ask you a couple of questions about yourself.

1. What was your age on your last birthday??
2. What is your marital status?
 1. Single
 2. Married
 3. Married/separated
 4. Divorced
 5. Widower
 6. Prefer not to answer
3. What is your highest level of education?
 1. No formal education/qualification
 2. Primary (1-5 standard)
 3. High school (6-10 standard)
 4. Higher secondary (11-12 standard)
 5. Under graduation
 6. Postgraduation
 7. Others, specify
4. What is your religion?
 1. Hindu
 2. Muslim

3. Christian
4. Others (Specify)

5. What is your working status at present?

1. Employed-Skilled
2. Employed-Semiskilled
3. unemployed
4. Self-employed
5. Farmer
6. Agricultural labourer
7. Retired
8. Others
9. Prefer not to answer

5.1. If a farmer or agricultural labourer, how long have you been working as a farmer or agricultural labourer?

1. Less than 1 year
2. 1–5 years
3. 6–10 years
4. More than 10 years

5.2. What type of farming activities are you involved in?

1. Crop cultivation
2. Horticulture
3. Livestock farming
4. Other (please specify)

5.3. Do you use pesticides in your farm or field?

1. Yes
2. No

5.4. If yes, what type of pesticides do you use?

1. Organophosphates
2. Herbicides
3. Insecticides
4. Fungicides

5. Organic pest repellents

5.5. How often do you use pesticides in a farming season?

1. Weekly
2. Monthly
3. Occasionally (less than once a month)
4. Rarely

5.6. On average, how much time do you spend per session of pesticide application during a typical farming season?

1. Less than 1 hour
2. 1–2 hours
3. 2–4 hours
4. More than 4 hours

5.7. What type of machine do you use for pesticide application?

1. Manually operated
2. Battery powered

5.8. Do you use any protective equipment while applying pesticides (e.g., gloves, mask, goggles)?

1. Always
2. Sometimes
3. Never

6. Annual income of the family from all sources?

7. Which social category do you belong to?

1. General
2. OBC
3. SC
4. ST
5. Prefer not to answer

8. How close are you to the nearest healthcare facility?

1. <1 km
2. 1-3 kms
3. 3-5 kms
4. >5 kms

Questions on personal habits

9. Have you ever used tobacco products in the past?

1. Yes
2. No

10. Do you currently use any tobacco products?

1. Yes
2. No

10.1. If yes, what products are you currently using?

1. Cigarette, beedi, cigar etc
2. Betel quid, snuff, etc.
3. Others

11. Have you ever consumed any alcohol?

1. Yes
2. No

12. Do you currently consume alcohol?

1. Yes
2. No

Section – 2: General cancer awareness

This question is about your awareness of and beliefs about, cancer; it is not assessing your personal risk of cancer. This is not a test; we are interested in your thoughts and beliefs so please answer the questions as honestly as you can.

1. Have you come across information on diseases like cancer before?

1. Yes, I am familiar with it.

2. I have heard of it but don't know much about it.
 3. No, I am not familiar with it.
2. Do you believe cancer is preventable?
 1. Yes
 2. Yes, but not all cancers are preventable
 3. Yes, some are preventable
 4. No
 5. Not sure
3. Is there anyone in your family including you or anyone you know who might have or had cancer?
 1. Yourself
 2. Close family member
 3. Distant/other relative
 4. Close friend
 5. Co-worker
 6. Don't know
 7. Prefer not to say
4. I'm now going to list some symptoms that may or may not be warning signs for cancer. For each one, can you tell me whether you think that it could be a warning sign for cancer?
 1. Lump/swelling
 2. Dry hands (dummy)
 3. Pain
 4. Tingling toes (dummy)
 5. Bleeding
 6. Cough/hoarseness
 7. Frequent yawning (dummy)
 8. Change in bowel/bladder habits
 9. Ringing in ears (dummy)
 10. Difficulty swallowing
 11. Change in appearance of a mole
 12. Sore that does not heal
 13. Weight loss
 14. Fatigue/tiredness
 15. Frequent nosebleeds (dummy)

16. Generally unwell

17. Easy bruising

18. Loss of appetite

5. What are the factors or behaviours/habits that you think might cause cancer?

1. Smoking cigarettes

2. Wearing tight shoes (dummy)

3. Exposure to another person's cigarette smoke

4. Drinking alcohol

5. Sleeping late at night (dummy)

6. Not eating adequate fruits and vegetables

7. Eating red or processed meat

8. Using a mobile phone while charging (dummy)

9. Overweight

10. Wearing synthetic clothes (dummy)

11. Getting sunburnt

12. Old age

13. Eating spicy food regularly (dummy)

14. Some bacterial or viral infections like H-Pylori, HPV (Human Papillomavirus) etc

15. Physical inactivity

16. Genetics and family history

17. Skipping breakfast occasionally (dummy)

18. Exposure to radiation and pollution

19. Age at marriage

20. Multiple sex partners

19. Can you name a few cancers that you think of, that are common among women?

1. Breast cancer

2. Cervical cancer.

3. Ovarian cancer

4. Uterus cancer

5. Oral cancer

6. Lung cancer

7. Others

20. Can you name a few cancers that you think of, that are common among men?

1. Oral cancer

2. Lung cancer
3. Oesophageal cancer
4. Stomach cancer
5. Colorectal cancer
6. Prostate cancer
7. Others

Section – 3: Self-Reported Symptoms of the participants

I would like to ask you if you are currently experiencing any of the following. Please feel free to answer only what you're comfortable with.

1. Do you feel unusually fatigued/ tired?
 1. Yes
 2. No
2. Do you have difficulty initiating or stopping urination?
 1. Yes
 2. No
3. Do you feel like you have not urinated completely?
 1. Yes
 2. No
4. Do you experience frequent urination, especially at night?
 1. Yes
 2. No
5. Have you noticed blood in your urine or semen?
 1. Yes
 2. No
6. Do you have difficulty achieving or maintaining an erection?
 1. Yes
 2. No
7. Have you had pain or discomfort during urination or ejaculation?
 1. Yes
 2. No
8. Have you had pain in hips and persistent low back pain?
 1. Yes

2. No

Section – 4: Awareness of prostate cancer

(The prostate gland is part of men's reproductive health. We're studying awareness about its health importance)

1. Do you know of an organ in men called the prostate?

1. No
2. Yes

1.1. If yes, what's the source of information?

1. TV/Radio
2. News paper
3. Physician
4. Internet
5. Friends/family
6. Health camps
7. Others

2. Do you know a cancer called prostate cancer?

1. Yes
2. No

3. Have you or any of your relatives (father, brothers, etc.) ever had prostate cancer?

1. No
2. Yes, I've had
3. Yes, indicate who _____

4. Have you ever heard that prostate cancer can be detected at an early stage and there will be a better prognosis if the cancer is detected early

1. Yes
2. No
3. No answer

4.1. If yes, what was the source of information?

1. TV/Radio
2. Newspaper
3. Media campaign
4. Doctors
5. Any relative or friend had the condition, hence I knew
6. Health camps
7. Others

5. Can you name any risk factors that may increase the chance of getting prostate cancer?

1. Age
2. Family history
3. Excessive use of caffeine (Dummy)
4. Smoking
5. Diet
6. Wearing tight clothing (Dummy)
7. Keeping smartphones in pant pockets (Dummy)
8. Obesity
9. Sedentary lifestyle
10. Sleeping less than 6 hours a day (Dummy)
11. Exposure to chemicals
12. Don't know
13. No answer

6. At what age do you think men are typically at risk of developing prostate cancer?

1. Younger age
2. Middle age
3. Old age
4. Not sure

7. Have you heard of the Symptoms of prostate cancer? (Flash cards to be used along with common unrelated symptoms)

1. Difficulty starting urination.
2. Weak or interrupted flow of urine.
3. Numbness in the fingers and toes (Dummy)

4. Urinating often, especially at night.
5. Sudden increased appetite (Dummy)
6. Frequent masturbation (Dummy)
7. Trouble emptying the bladder completely.
8. Pain or burning during urination.
9. Blood in the urine or semen.
10. Regular spicy food consumption.
11. Pain in the back, hips, or pelvis that doesn't go away.
12. Painful ejaculation

8. Have you ever heard of prostate specific antigen test (PSA)?

1. Yes
2. No

9. Have you ever heard of the Digital Rectal Examination (DRE) as a screening method for prostate or anorectal conditions?

1. Yes
2. No
3. Not Sure

10. How familiar are you with the purpose of the Digital Rectal Examination (DRE)?

1. Very familiar (I understand its purpose and why it is done)
2. Somewhat familiar (I have a general idea of its purpose)
3. Not familiar (I do not know why it is done)

Section - 5: Practices

1. Have you ever gone to the physician and/or a urologist for prostate problems?

1. No
2. Yes, physician
3. Yes, urologist

2. Did the physician and/or urologist tell you about the PSA test?

1. No (**go to the question 4.**)
2. Yes, physician, when I was ____ years old
3. Yes, urologist, when I was ____ years old

3. Has a physician and / or urologist informed you about the advantages and disadvantages of having the PSA test?

1. No
2. Yes

4. Have you ever had the PSA test?

1. Yes,
2. No,
3. No answer

4.1. If yes, what were the reasons?

Section - 6: Information

1. Have you ever received information on prostate cancer before? (**more than one answer is possible**)

1. Yes
2. No

1.1. If yes, from who?

1. Mass media
2. News paper
3. Physician
4. Internet
5. Friends/family other

2. Do you need more information about prostate cancer?

1. Yes
2. No

3. Have you ever received information about the PSA test? **(more than one answer is possible)**

1. Yes
2. No

3.1 If yes, from whom?

1. Mass media
2. Physician
3. Internet
4. Friends/family
5. Others

4. Do you feel you need more information about the PSA test?

1. Yes
2. No

5. Do you feel you need more information about the DRE (digital rectal examination) test?

1. Yes
2. No

❖ **That is the end of the survey, thank you very much for your time.**

❖ **Would you be willing to share your contact number to contact you if there is any clarification needed in the future?**

1. Yes, am willing to share
2. No, am not willing

ANNEXURE 4 - பங்கேற்பாளர் தகவல் தாள்

அறிமுகம்:

வணக்கம்! நான் டாக்டர் லெனின் அ, தற்போது கேரளாவின் திருவனந்தபுரத்தில் உள்ள ஸ்ரீ சித்ரா திருநாள் மருத்துவ அறிவியல் மற்றும் தொழில்நுட்ப நிறுவனத்தில் சுகாதார அறிவியல் ஆய்வுகளுக்கான அச்சுத மேனன் மையத்தில் மாஸ்டர் ஆஃப் பப்ளிக் ஹெல்த் (MPH) படிப்பு திட்டத்தில் படித்து வருகிறேன். நான் தற்போது மேற்கொண்டு வரும் MPH பட்டமேற்படிப்பின் ஒரு பகுதியாக இந்த ஆய்வு மேற்கொள்ளப்பட்டு வருகிறது,

எனது கல்வி ஆராய்ச்சியின் ஒரு பகுதியாக, "**வயது வந்த ஆண் மக்களிடையே புரோஸ்டேட் புற்றுநோய் விழிப்புணர்வை மதிப்பிடுதல்: ஒட்டன்சத்திரம் நகராட்சி, திண்டுக்கல், தமிழ்நாடு**" என்ற தலைப்பில் ஒரு கணக்கெடுப்பை நடத்தி வருகிறேன். இந்த ஆய்வில் பங்கேற்க நீங்கள் அழைக்கப்படுகிறீர்கள், ஏனென்றால் உங்கள் மதிப்புமிக்க உள்ளீடுகள் மற்றும் பொதுவான மக்களிடையே புரோஸ்டேட் புற்றுநோய் விழிப்புணர்வின் அளவைப் புரிந்துகொள்வதற்கு குறிப்பிடத்தக்க பங்களிப்பை வழங்கும், மேலும் இது புரோஸ்டேட் புற்றுநோய் தடுப்பு முயற்சிகள் மற்றும் உத்திகளை மேம்படுத்த உதவும்.

இந்த ஆய்வு, புரோஸ்டேட் புற்றுநோய் தொடர்பான விழிப்புணர்வின் அளவை மதிப்பிடுவதை நோக்கமாகக் கொண்டுள்ளது, இதில் ஆபத்து காரணிகள், அறிகுறிகள் மற்றும் பிராந்தியத்தில் உள்ள ஆண்களிடையே ஸ்கிரீனிங் நடைமுறைகள் ஆகியவை அடங்கும். ஆய்வின் கண்டுபிடிப்புகள் சமூகத்தில் புரோஸ்டேட் புற்றுநோய் கல்வி மற்றும் தடுப்பு மேம்படுத்த திட்டங்களை உருவாக்க உதவும்.

இந்த தகவல் தாளில் பின்வரும் தகவல்களைப் புரிந்துகொள்ள தயவுசெய்து போதுமான நேரம் எடுத்துக்கொள்ளுங்கள். உங்களுக்கு புரியாத ஏதேனும் சொற்கள் அல்லது தகவல்கள் இருந்தால், தயவுசெய்து இவற்றை என்னிடம் தயங்காமல் கேட்டு தெளிவுபடுத்திக் கொள்ளலாம். இந்த ஆய்வு தொடர்பான எந்த கேள்வியையும் நீங்கள் கேட்கலாம்.

உங்கள் பங்கேற்பில் என்ன இருக்கும்?

நீங்கள் பங்கேற்க ஒப்புக்கொண்டால், சுமார் 30-40 நிமிடங்கள் எடுக்கும் கருத்துக்கணிப்புக்கு பதிலளிக்குமாறு உங்களிடம் கேட்டுக்கொள்ளப்படும்.

தன்னார்வ பங்கேற்பு:

உங்கள் பங்கேற்பு முற்றிலும் தன்னார்வத்திலானது. பங்கேற்பதா வேண்டாமா என்பதைத் தேர்ந்தெடுக்க உங்களுக்கு சுதந்திரம் உள்ளது, நீங்கள் அவ்வாறு செய்ய விரும்பினால் எந்த நேரத்திலும் விலகிக்கொள்ளலாம்.

அபாயங்கள்:

இந்த ஆய்வுடன் தொடர்புடைய எதிர்பார்க்கப்படும் அபாயங்கள் எதுவும் இல்லை. இருப்பினும், ஏதேனும் கேள்விகளுக்கு பதிலளிக்க உங்களுக்கு சங்கடமாக இருந்தால், அவற்றைத் தவிர்க்க உங்களுக்கு சுதந்திரம் உள்ளது.

நன்மைகள்:

உங்களுக்கு நேரடி நன்மைகள் எதுவும் இல்லை என்றாலும், சமூகத்தில் புரோஸ்டேட் புற்றுநோய் விழிப்புணர்வு மற்றும் சுகாதார திட்டங்களை மேம்படுத்த உதவும் முக்கியமான ஆராய்ச்சிக்கு உங்கள் பங்கேற்பு பங்களிக்கும்.

இரகசியத்தன்மை:

நீங்கள் வழங்கும் அனைத்து தகவல்களும் ரகசியமாக வைக்கப்படும். உங்கள் பதில்கள் அநாமதேயமாக்கப்படும், இந்த ஆய்வின் விளைவாக வெளியிடப்படும் எந்த அறிக்கைகள் அல்லது வெளியீடுகளிலும் தனிப்பட்ட அடையாளங்காட்டிகள் எதுவும் பயன்படுத்தப்படாது. எந்த நிலையிலும் உங்கள் அடையாளம் வெளிப்படுத்தப்படாது. ஒவ்வொரு பங்கேற்பாளருக்கும் ஒரு பதிலளிப்பவர் அடையாள எண் ஒதுக்கப்படும், இது சேகரிக்கப்பட்ட தரவின் ரகசியத்தன்மையைப் பராமரிக்க உதவும். இந்த பதிலளித்தவரின் அடையாள எண்ணுக்கான அணுகல் முதன்மை புலனாய்வாளரின் வழிகாட்டிக்கு மட்டுமே தெரிவிக்கப்படும், அவர் தரவை பகுப்பாய்வு செய்வதில் உதவி வழங்குவார்.

தொடர்பு தகவல்:

ஆய்வு பற்றி நீங்கள் ஏதேனும் கேள்விகள் கேட்க வேண்டும் என்றால், நீங்கள் என்னை பின்வரும் எண்ணில் தொடர்பு கொள்ளலாம்

மருத்துவர் லெனின் அ , 9751004633/lenin@sctimst.ac.in

டாக்டர் ஸ்ரீனிவாஸ் ஜி, உறுப்பினர் செயலாளர், IEC, SCTIMST, & விஞ்ஞானி - G, உயிர் வேதியியல் துறை, SCTIMST, (மின்னஞ்சல் iec.mem.sec@sctimst.ac.in).

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இந்த முக்கியமான ஆராய்ச்சியில் உங்கள் பங்கேற்பு குறித்து பரிசீலித்ததற்கு நன்றி.

ANNEXURE 5 - அறிந்தளிக்கப்பட்ட ஒப்புதல் படிவம்

"வயது வந்த ஆண் மக்களிடையே புரோஸ்டேட் புற்றுநோய் விழிப்புணர்வை மதிப்பிடுதல்: ஒட்டன்சத்திரம் நகராட்சி, திண்டுக்கல், தமிழ்நாடு" என்ற தலைப்பில் ஆய்வறிக்கையில் பங்கேற்க நான் அழைக்கப்பட்டுள்ளேன். ஆய்வு தொடர்பாக அளிக்கப்பட்ட தகவலை நான் படித்துவிட்டேன், அல்லது அது எனக்கு படித்துக் காட்டப்பட்டது. அதைப் பற்றிக் கேள்விகள் கேட்க எனக்கு வாய்ப்பு அளிக்கப்பட்டது, மேலும் என்னிடம் கேட்கப்பட்ட கேள்விகளுக்கு எனக்குத் திருப்தியளிக்கும் வகையில் பதிலளிக்கப்பட்டது.

ஆய்வில் பங்கேற்பதில் குறைந்தபட்ச அபாயம் உள்ளது என்பதை நான் அறிவேன்.

ஆய்வில் உடனடியாக நேரடிப் பலன் எதுவும் இல்லை என்பதை நான் புரிந்துகொள்கிறேன்.

பங்கேற்புக்கு நான் ஊக்குவிக்கப்பட மாட்டேன் என்று எனக்குத் தெரியும்.

எனது தனிப்பட்ட தகவல் ரகசியமாக இருக்கும் என்பதை நான் புரிந்துகொள்கிறேன்.

ஆய்வின் எந்த நிலையிலும் எனது ஒப்புதலை நான் திரும்பப் பெறலாம் என்பது எனக்குத் தெரியும்

இந்த ஆய்வில் பங்கேற்க நான் தன்னார்வத்துடன் ஒப்புதல் அளிக்கிறேன்.

பங்கேற்பாளர் ஐடி:

பங்கேற்பவரின் பெயர்:

அலைபேசி எண்:

கையொப்பம்:

இடம்:

தேதி:

பங்கேற்பாளர் ஆய்வு பற்றி கேள்விகள் கேட்க அனுமதிக்கப்பட்டார் என்றும், பங்கேற்பாளர் கேட்ட அனைத்து கேள்விகளுக்கும் சரியாகவும், என்னால் முடிந்த வரையிலும் பதிலளிக்கப்பட்டது என்றும் நான் உறுதிப்படுத்துகிறேன். ஒப்புதல் அளிக்க தனிநபர் வற்புறுத்தப்படவில்லை என்றும், ஒப்புதல் சுதந்தரமாகவும் தன்னார்வத்துடனும் வழங்கப்பட்டது என்றும் நான் உறுதிப்படுத்துகிறேன்.

ஆராய்ச்சியாளரின் பெயர்:

தேதி:

கையொப்பம்:

ANNEXURE 6 – Interview schedule Tamil

"வயது வந்த ஆண் மக்களிடையே புரோஸ்டேட் புற்றுநோய் விழிப்புணர்வை மதிப்பிடுதல்: ஒட்டன்சத்திரம் நகராட்சியில் ஒரு குறுக்கு வெட்டு கணக்கெடுப்பு, திண்டுக்கல், தமிழ்நாடு"

வார்டு எண் –

வீட்டு எண் -

பங்கேற்பாளர் அடையாளம்- வடிவம் (வார்டு எண்/HH எண்/பங்கேற்பாளர் எண்)

பிரிவு-1: மக்கள்தொகை தகவல்

நான் இப்போது உங்களைப் பற்றி சில கேள்விகளைக் கேட்க விரும்புகிறேன்.

1. நிறைவு ஆண்டுகளில் உங்கள் வயது என்ன?

2. உங்கள் திருமண நிலை என்ன?

1. திருமணமாகாதவர்
2. திருமணமானவர்
3. திருமணமானவர்/பிரிந்தவர்
4. விவாகரத்து பெற்றவர்
5. மனைவியை இழந்தவர்
6. பதில் சொல்ல விரும்பவில்லை

3. உங்கள் மிக உயர்ந்த கல்வி நிலை என்ன?

1. முறையான கல்வி/தகுதி இல்லை
2. முதன்மை (1-5 வகுப்பு)
3. உயர்நிலைப்பள்ளி (6-10 வகுப்பு)
4. மேல்நிலை (11-12 வகுப்பு)
5. இளங்கலை பட்டப்படிப்பு
6. முதுகலை பட்டப்படிப்பு
7. மற்றவை (குறிப்பிடவும்).....

4. உங்கள் மதம் என்ன?

1. இந்து
2. முஸ்லிம்
3. கிரிஸ்துவர்
4. மற்றவை (குறிப்பிடுக)

5. தற்போது உங்கள் பணி நிலை என்ன?

1. வேலைவாய்ப்பு-திறமையானவர்
2. வேலைவாய்ப்பு-பகுதி திறமையானவர்
3. வேலையில்லா திண்டாட்டம்
4. சுயதொழில்
5. உழவர்
6. விவசாயக் கூலித் தொழிலாளி
7. ஓய்வு பெற்றவர்
8. மற்றவை
9. பதில் சொல்ல விரும்பவில்லை

5.1. ஒரு விவசாயி அல்லது விவசாயத் தொழிலாளி என்றால், நீங்கள் எவ்வளவு காலமாக ஒரு விவசாயி அல்லது விவசாயத் தொழிலாளியாக வேலை செய்கிறீர்கள்?

1. 1 வருடத்திற்கும் குறைவானது

2. 1-5 ஆண்டுகள்
3. 6-10 ஆண்டுகள்
4. 10 ஆண்டுகளுக்கும் மேலாக

5.2. நீங்கள் எந்த வகையான விவசாய நடவடிக்கைகளில் ஈடுபட்டுள்ளீர்கள்?

1. பயிர் சாகுபடி
2. தோட்டக்கலை
3. கால்நடை வளர்ப்பு
4. மற்றவை (தயவுசெய்து குறிப்பிடவும்)

5.3. உங்கள் பண்ணை அல்லது வயலில் பூச்சிக்கொல்லிகளைப் பயன்படுத்துகிறீர்களா?

1. ஆம்
2. இல்லை

5.4. ஆம் எனில், நீங்கள் எந்த வகையான பூச்சிக்கொல்லிகளைப் பயன்படுத்துகிறீர்கள்?

1. ஆர்கனோபாஸ்பேட்டுகள்
2. களைக்கொல்லிகள்
3. பூச்சிக்கொல்லிகள்
4. பூஞ்சைக் கொல்லிகள்
5. கரிம பூச்சி விரட்டிகள்

5.5. விவசாய பருவத்தில் பூச்சிக்கொல்லிகளை எத்தனை முறை பயன்படுத்துகிறீர்கள்?

1. வாராந்திர
2. மாதந்தோறும்
3. எப்போதாவது (மாதத்திற்கு ஒரு முறைக்கு குறைவாக)
4. அரிதாக

5.6. சராசரியாக, ஒரு பொதுவான விவசாய பருவத்தில் பூச்சிக்கொல்லி பயன்பாட்டின் ஒரு அமர்வுக்கு எவ்வளவு நேரம் செலவிடுகிறீர்கள்?

1. மணி நேரத்திற்கும் குறைவாக
2. 1-2 மணி நேரம்
3. 2-4 மணி நேரம்
4. 4 மணி நேரத்திற்கும் மேலாக

5.7. பூச்சிக்கொல்லி பயன்பாட்டிற்கு நீங்கள் எந்த வகையான இயந்திரத்தைப் பயன்படுத்துகிறீர்கள்?

1. கைமுறையாக இயக்கப்படுகிறது
2. பேட்டரி மூலம் இயக்கப்படுகிறது

5.8. பூச்சிக்கொல்லிகளைப் பயன்படுத்தும்போது ஏதேனும் பாதுகாப்பு உபகரணங்களைப் பயன்படுத்துகிறீர்களா (எ.கா., கையுறைகள், முகமூடி, கண்ணாடிகள்)?

1. எப்போதும்
2. சில நேரங்களில்
3. ஒருபோதும் இல்லை

6. அனைத்து ஆதாரங்களில் இருந்தும் குடும்பத்தின் ஆண்டு வருமானம்?

7. நீங்கள் எந்த சமூக வகையைச் சேர்ந்தவர்?

1. பொது வகை
2. ஓ.பி.சி (இதர பிற்படுத்தப்பட்ட வகுப்பினர்)
3. எஸ்சி (பட்டியல் சாதியினர்)
4. எஸ்.டி. (பழங்குடியினர்)
5. பதில் சொல்ல விரும்பவில்லை

8. அருகிலுள்ள சுகாதார வசதிக்கு நீங்கள் எவ்வளவு அருகில் இருக்கிறீர்கள்?

1. <1 கி.மீ

2. 1-3 கி.மீ.
3. 3-5 கி.மீ.
4. >5 கி.மீ.

தனிப்பட்ட விபரங்கள்

8. கடந்த காலத்தில் நீங்கள் எப்போதாவது புகையிலை பொருட்களைப் பயன்படுத்தியிருக்கிறீர்களா?

1. ஆம்
2. இல்லை

9. நீங்கள் தற்போது ஏதேனும் புகையிலை பொருட்களைப் பயன்படுத்துகிறீர்களா?

1. ஆம்
2. இல்லை

9. ஆம் எனில், நீங்கள் தற்போது என்ன தயாரிப்புகளைப் பயன்படுத்துகிறீர்கள்?

1. சிகரெட், பீடி, சுருட்டு போன்றவை
2. வெற்றிலைக் குழாய், மூக்குப்பொடி முதலியன.
3. மற்றவை

10. நீங்கள் எப்போதாவது மது அருந்தியிருக்கிறீர்களா?

1. ஆம்
2. இல்லை

11. நீங்கள் தற்போது மது அருந்துகிறீர்களா?

1. ஆம்
2. இல்லை

பிரிவு – 2: பொது புற்றுநோய் விழிப்புணர்வு

இந்த கேள்வி புற்றுநோயைப் பற்றிய உங்கள் விழிப்புணர்வு மற்றும் நம்பிக்கைகளைப் பற்றியது; இது உங்கள் தனிப்பட்ட புற்றுநோய் அபாயத்தை மதிப்பிடவில்லை. இது பரீட்சை அல்ல; உங்கள் எண்ணங்கள் மற்றும் நம்பிக்கைகளில் நாங்கள் ஆர்வமாக உள்ளோம், எனவே தயவுசெய்து கேள்விகளுக்கு உங்களால் முடிந்தவரை நேர்மையாக பதிலளிக்கவும்.

1. 'புற்றுநோய்' பற்றி நீங்கள் அறிந்திருக்கிறீர்களா?

1. ஆம், அது எனக்குத் தெரியும்.
2. நான் அதைப் பற்றி கேள்விப்பட்டிருக்கிறேன், ஆனால் அதைப் பற்றி அதிகம் தெரியாது.
3. இல்லை, எனக்கு அது பரிச்சயம் இல்லை.

2. புற்றுநோய் தடுக்கக்கூடியது என்று நீங்கள் நம்புகிறீர்களா?

1. ஆம்
2. ஆம், ஆனால் எல்லா புற்றுநோய்களையும் தடுக்க முடியாது
3. ஆம், சில தடுக்கக்கூடியவை
4. இல்லை
5. நிச்சயமல்ல

3. உங்களின் குடும்பத்தில் உங்களையும் சேர்த்து அல்லது உங்களுக்கு தெரிந்த யாராவது நபர் புற்றுநோயால் பாதிக்கப்பட்டவரா அல்லது பாதிக்கப்பட்டிருக்க வாய்ப்புள்ளவரா?

1. நீங்களே
2. நெருங்கிய குடும்ப உறுப்பினர்
3. தொலைதூர / பிற உறவினர்
4. நெருங்கிய நண்பர்
5. சக பணியாளர்
6. தெரியாது
7. சொல்ல விரும்பவில்லை

4. புற்றுநோய்க்கான எச்சரிக்கை அறிகுறிகளாக இருக்கலாம் அல்லது இல்லாத சில அறிகுறிகளை நான் இப்போது பட்டியலிடப் போகிறேன். ஒவ்வொன்றுக்கும், இது புற்றுநோய்க்கான எச்சரிக்கை அறிகுறியாக இருக்கலாம் என்று நீங்கள் நினைக்கிறீர்களா என்று சொல்ல முடியுமா?

1. கட்டி / வீக்கம்
2. உலர்ந்த கைகள் (டம்மி)
3. வலி
4. கூச்ச விரல்கள் (டம்மி)
5. இரத்தப்போக்கு (Bleeding)
6. இருமல் / கரகரப்பு
7. அடிக்கடி கொட்டாவி விடுதல் (டம்மி)
8. குடல் / சிறுநீர்ப்பை பழக்கத்தில் மாற்றம்
9. காதுகளில் ரீங்காரம் (டம்மி)
10. விழுங்குவதில் சிரமம்
11. ஒரு மச்சத்தின் தோற்றத்தில் மாற்றம்
12. ஆறாத புண்
13. எடை இழப்பு
14. சோர்வு / களைப்பு
15. அடிக்கடி மூக்கில் இரத்தம் வடிதல் (டம்மி)
16. பொதுவாக உடல்நிலை சரியில்லாமல் இருத்தல்
17. எளிதான சிராய்ப்பு
18. பசியின்மை

5. புற்றுநோயை ஏற்படுத்தக்கூடும் என்று நீங்கள் நினைக்கும் காரணிகள் அல்லது நடத்தைகள் / பழக்கவழக்கங்கள் யாவை?

1. சிகரெட் புகைத்தல்
2. இறுக்கமான காலணிகளை அணிதல் (டம்மி)
3. மற்றொரு நபரின் சிகரெட் புகைக்கு வெளிப்பாடு
4. மது அருந்துதல்
5. போதுமான பழங்கள் மற்றும் காய்கறிகளை சாப்பிடாமல் இருத்தல்

6. சிவப்பு அல்லது பதப்படுத்தப்பட்ட இறைச்சியை சாப்பிடுவது
7. சார்ஜ் செய்யும் போது மொபைல் ஃபோனைப் பயன்படுத்துதல் (போலி)
8. அதிக எடை
9. செயற்கை ஆடைகளை அணிதல் (டம்மி)
10. வெயில் கொளுத்துதல்
11. அடிக்கடி கொட்டாவி விடுதல் (டம்மி)
12. முதுமை
13. காரமான உணவை தவறாமல் சாப்பிடுவது (டம்மி)
14. எச்-பைலோரி, எச்.பி.வி (மனித பாப்பிலோமாவைரஸ்) போன்ற சில பாக்டீரியா அல்லது வைரஸ் தொற்றுகள்
15. உடல் செயலற்ற தன்மை
16. மரபியல் மற்றும் குடும்ப வரலாறு
17. எப்போதாவது காலை உணவைத் தவிர்ப்பது (டம்மி)
18. கதிர்வீச்சு மற்றும் மாசுபாட்டின் வெளிப்பாடு
19. திருமண வயது
20. பல பாலியல் பங்காளிகள்

6. பெண்களிடம் பொதுவாகக் காணப்படும் சில புற்றுநோய்களின் பெயர்களைக் கூற முடியுமா?

1. மார்பக புற்றுநோய்
2. கர்ப்பப்பை வாய்ப் புற்றுநோய்.
3. கருப்பை புற்றுநோய்
4. கருப்பை புற்றுநோய்
5. வாய் புற்றுநோய்
6. நுரையீரல் புற்றுநோய்
7. மற்றவை.....

7. ஆண்களிடம் பொதுவாகக் காணப்படும் புற்றுநோய்கள் சிலவற்றைக் குறிப்பிட முடியுமா?

1. வாய் புற்றுநோய்

2. துரையீரல் புற்றுநோய்
3. உணவுக்குழாய் புற்றுநோய்
4. வயிற்று புற்றுநோய்
5. பெருங்குடல் புற்றுநோய்
6. புரோஸ்டேட் புற்றுநோய்
7. மற்றவை

பிரிவு - 3: பங்கேற்பாளர்களின் சுய அறிவிக்கப்படும் அறிகுறிகள்.

பின்வருவனவற்றில் எதையாவது நீங்கள் தற்போது அனுபவிக்கிறீர்களா என்று கேட்க விரும்புகிறேன். உங்களுக்கு வசதியாக இருக்கும் கேள்விகளுக்கு மட்டுமே பதிலளிக்க தயங்க வேண்டாம்,

1. நீங்கள் வழக்கத்திற்கு மாறாக சோர்வாக / சோர்வாக உணர்கிறீர்களா?
 1. ஆம்
 2. இல்லை
2. சிறுநீர் கழிப்பதைத் தொடங்குவதில் அல்லது நிறுத்துவதில் உங்களுக்கு சிரமம் உள்ளதா?
 1. ஆம்
 2. இல்லை
3. நீங்கள் முழுமையாக சிறுநீர் கழிக்கவில்லை என்று உணர்கிறீர்களா?
 1. ஆம்
 2. இல்லை
4. நீங்கள் அடிக்கடி சிறுநீர் கழிக்கிறீர்களா, குறிப்பாக இரவில்?
 1. ஆம்
 2. இல்லை

5. உங்கள் சிறுநீர் அல்லது விந்துவில் இரத்தத்தை கவனித்திருக்கிறீர்களா?

1. ஆம்
2. இல்லை

6. விறைப்புத்தன்மையை அடைவதில் அல்லது பராமரிப்பதில் உங்களுக்கு சிரமம் இருக்கிறதா?

1. ஆம்
2. இல்லை

7. சிறுநீர் கழிக்கும்போது அல்லது விந்து வெளியேறும்போது உங்களுக்கு வலி அல்லது அசௌகர்யம் இருந்ததா?

1. ஆம்
2. இல்லை

8. உங்களுக்கு இடுப்பில் வலி மற்றும் தொடர்ச்சியான கீழ் முதுகுவலி இருந்ததா?

1. ஆம்
2. இல்லை

பிரிவு - 4: புரோஸ்டேட் புற்றுநோய் பற்றிய விழிப்புணர்வு

புரோஸ்டேட் சுரப்பி ஆண்களின் இனப்பெருக்க ஆரோக்கியத்தின் ஒரு பகுதியாகும். அதன் ஆரோக்கிய முக்கியத்துவம் குறித்த விழிப்புணர்வை ஆய்வு செய்து வருகிறோம்.

1. புரோஸ்டேட் புற்றுநோய் ஆண்களுக்கு ஏற்படும் மிகவும் பொதுவான புற்றுநோய்களில் ஒன்றாகும். நீங்கள் எப்போதாவது அதைப் பற்றி கேள்விப்பட்டிருக்கிறீர்களா?

1. இல்லை
2. ஆமாம், யாரிடமிருந்து?
 1. வெகுஜன ஊடகங்கள்

2. மருத்துவர்
3. இணையம்
4. நண்பர்கள்/குடும்பத்தினர்
5. வேறு

3. நீங்கள் அல்லது உங்கள் உறவினர்களில் எவருக்கும் (தந்தை, சகோதரர்கள் போன்றவை) எப்போதாவது புரோஸ்டேட் புற்றுநோய் இருந்ததா?

1. இல்லை
2. ஆம், எனக்கு இருந்தது
3. ஆம், யார் _____ என்பதைக் குறிப்பிடுங்கள்

4. புரோஸ்டேட் புற்றுநோய் தடுப்பு பற்றி நீங்கள் எப்போதாவது கேள்விப்பட்டிருக்கிறீர்களா?

1. ஆம்
2. இல்லை
3. பதில் இல்லை

5. ஆம் எனில், தகவல்களின் ஆதாரம் எது?

1. தொலைக்காட்சி/வானொலி
2. செய்தித்தாள்
3. ஊடக பிரச்சாரம்
4. மருத்துவர்கள்
5. எந்த உறவினர் அல்லது நண்பருக்கும் இந்த நிலை இருந்தது, எனவே எனக்குத் தெரியும்
6. மருத்துவ முகாம்கள்
7. மற்றவை

6. புரோஸ்டேட் புற்றுநோயைப் பெறுவதற்கான வாய்ப்பை அதிகரிக்கக்கூடிய ஏதேனும் ஆபத்து காரணிகளை நீங்கள் பெயரிட முடியுமா?

1. வயது
2. குடும்ப வரலாறு

3. அதிகப்படியான காபி பயன்பாடு (டம்மி)
4. புகைத்தல்
5. உணவு
6. இறுக்கமான ஆடைகளை அணிதல் (டம்மி)
7. ஸ்மார்ட்போன்களை பேன்ட் பாக்கெட்டுகளில் வைத்திருத்தல் (டம்மி)
8. உடற்பருமன
9. உட்கார்ந்த வாழ்க்கை முறை
10. ஒரு நாளைக்கு 6 மணி நேரத்திற்கும் குறைவாக தூங்குதல் (டம்மி)
இரசாயனங்கள் வெளிப்பாடு
11. தெரியாது
12. பதில் இல்லை

7. பொதுவாக ஆண்களுக்கு புரோஸ்டேட் புற்றுநோய் ஏற்படும் அபாயம் எந்த வயதில் இருக்கும் என்று நினைக்கிறீர்கள்?

1. இளைய வயது
2. நடுவயது
3. முதுமை
4. நிச்சயமல்ல

8. புரோஸ்டேட் புற்றுநோயின் அறிகுறிகளைப் பற்றி கேள்விப்பட்டிருக்கிறீர்களா?

1. சிறுநீர் கழிக்கத் தொடங்குவதில் சிரமம்.
2. பலவீனமான அல்லது தடைபட்ட சிறுநீர் ஓட்டம்.
3. விரல்கள் மற்றும் கால்விரல்களில் உணர்வின்மை (டம்மி)
4. அடிக்கடி சிறுநீர் கழிப்பது, குறிப்பாக இரவில்.
5. திடீரென அதிகரித்த பசி (டம்மி)
6. அடிக்கடி சுயஇன்பம் (டம்மி)
7. சிறுநீர்ப்பைையை முழுவதுமாக காலி செய்வதில் சிக்கல்.
8. சிறுநீர் கழிக்கும் போது வலி அல்லது எரிச்சல்.
9. சிறுநீர் அல்லது விந்தில் இரத்தம்.
10. வழக்கமான காரமான உணவு நுகர்வு.

11. முதுகு, இடுப்பு அல்லது இடுப்பில் வலி நீங்காது.
 12. வலிமிகுந்த விந்துதள்ளல்
9. பி.எஸ்.ஏ (புரோஸ்டேட்-குறிப்பிட்ட ஆன்டிஜென்) சோதனை என்பது ஒரு இரத்த பரிசோதனையாகும், இது அறிகுறிகள் ஏற்படுவதற்கு முன்பு புற்றுநோயை அடையாளம் காண உங்களை அனுமதிக்கிறது. நீங்கள் எப்போதாவது அதைப் பற்றி கேள்விப்பட்டிருக்கிறீர்களா?
1. ஆம்
 2. இல்லை

பிரிவு – 5: நடைமுறைகள்

1. புரோஸ்டேட் பிரச்சினைகளுக்கு நீங்கள் எப்போதாவது மருத்துவர் மற்றும் / அல்லது சிறுநீரக மருத்துவரிடம் சென்றிருக்கிறீர்களா?
 1. இல்லை
 2. ஆம், மருத்துவர்
 3. ஆம், சிறுநீரக மருத்துவர்
2. மருத்துவர் மற்றும் / அல்லது சிறுநீரக மருத்துவர் பிஎஸ்ஏ சோதனை பற்றி உங்களிடம் சொன்னாரா?
 1. இல்லை (கேள்வி 4க்கு செல்லவும்.)
 2. ஆம் டாக்டர், எனக்கு ___ வயதாக இருந்தபோது
 3. ஆம், சிறுநீரக மருத்துவர், நான் ___ வயதாக இருந்தபோது
3. பிஎஸ்ஏ பரிசோதனையின் நன்மைகள் மற்றும் தீமைகள் குறித்து ஒரு மருத்துவர் மற்றும் / அல்லது சிறுநீரக மருத்துவர் உங்களுக்குத் தெரிவித்திருக்கிறாரா?
 1. ஆம்
 2. இல்லை
4. நீங்கள் எப்போதாவது பிஎஸ்ஏ சோதனை செய்திருக்கிறீர்களா?

1. ஆம்
2. இல்லை
3. பதில் இல்லை

4.1. ஆம் எனில், கடைசியாக சோதனை எப்போது செய்யப்பட்டது?

பிரிவு - 6: தகவல்

1. இதற்கு முன்பு புரோஸ்டேட் புற்றுநோய் பற்றிய தகவல்களைப் பெற்றிருக்கிறீர்களா? (ஒன்றுக்கு மேற்பட்ட பதில் சாத்தியமாகும்)

1. ஆம்
2. இல்லை

1.1 ஆம் எனில், யாரிடமிருந்து?

1. வெகுஜன ஊடகங்கள்
2. மருத்துவர்
3. இணையம்
4. நண்பர்கள் / குடும்பத்தினர்
5. மற்றவை

2. புரோஸ்டேட் புற்றுநோய் பற்றி உங்களுக்கு கூடுதல் தகவல் தேவையா?

1. ஆம்
2. இல்லை

3. பிஎஸ்ஏ சோதனை பற்றிய தகவலை நீங்கள் எப்போதாவது பெற்றிருக்கிறீர்களா? (ஒன்றுக்கு மேற்பட்ட பதில் சாத்தியமாகும்)

1. ஆம்
2. இல்லை

3.1. ஆம் என்றால், யாரிடமிருந்து?

1. வெகுஜன ஊடகங்கள்
2. மருத்துவர்
3. இணையம்
4. நண்பர்கள்/குடும்பத்தினர்

5. மற்றவை

4. பிளஸ் ஏ சோதனை பற்றி உங்களுக்கு கூடுதல் தகவல் தேவை என்று நினைக்கிறீர்களா?

1. ஆம்
2. இல்லை

5. டி. ஆர். இ (டிஜிட்டல் மலக்குடல் பரிசோதனை) சோதனை பற்றி உங்களுக்கு கூடுதல் தகவல் தேவை என்று நினைக்கிறீர்களா?

1. ஆம்
2. இல்லை

❖ இத்துடன் கருத்துக்கணிப்பு முடிந்தது. உங்கள் நேரத்திற்கு மிக்க நன்றி.

❖ எதிர்காலத்தில் ஏதேனும் விளக்கம் தேவைப்பட்டால் உங்களுடன் தொடர்பு கொள்ள உங்கள் தொடர்பு எண்ணைப் பகிர்ந்து கொள்ள நீங்கள் தயாராக இருக்கிறீர்களா?

1. ஆம், பகிர்ந்து கொள்ள தயாராக இருக்கிறேன்
2. இல்லை, நான் தயாராக இல்லை.

ANNEXURE 7 - IEC Approval letter



श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम
तिरुवनन्तापुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)

Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728/2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee

CDSO Registration No: ECR/189/Inst/KL/2013/RR-24
DHR Registration No: EC/NEW/INST/2022/2775

SCT/IEC/2333/DECEMBER/2024

15.01.2025

Dr. Lenin A
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Dr. Lenin,

The Institutional Ethics Committee held on 30th December, 2024, reviewed and discussed your application to conduct the study titled "ASSESSING PROSTATE CANCER AWARENESS AMONG THE ADULT MALE POPULATION: A CROSS-SECTIONAL SURVEY IN ODDANCHATRAM MUNICIPALITY, DINDIGUL, TAMIL NADU" (IEC /2333) .

Principal Investigator	Dr. Lenin A, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr. Jissa V T, Scientist D, AMCHSS, SCTIMST
Duration of the study	6 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2024

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Dr. Manoj Murhekar	MD (Preventive & Social Medicine)	Male	Social Scientist	No
2.	Dr. Annapurna.Y	MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. Indu PV	MBBS, DPM, MPhil, PhD	Female	Clinician	No
5.	Dr. Rejnish Kumar	MBBS, MD, DNB	Male	Clinician	No
6.	Smt. Rekha Radhakrishnan	M.A (Eng.); B.Ed	Female	Lay person	No
7.	Dr. Biju Soman	MBBS, MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes
8.	Dr. Syam K	MBBS, MD, DM	Male	Clinician	Yes
9.	Dr. Srinivas G	PhD	Male	Basic Medical Scientist (Member Secretary)	Yes

The following documents were reviewed:

Original submission

1. IEC Application Form
2. Covering letter addressed to the Chairperson, IEC, SCTIMST dated 10.12.2024 forwarded by HOD
3. Questionnaire in English and Tamil
4. Informed Consent Form in English and Tamil
5. Checklist for participant selection for the survey
6. Participant Information Sheets in English and Tamil
7. Checklist Form
8. Proposal
9. Declaration Form
10. CV of PI and Co-PI

Revised submission

1. Covering letter addressed to the Member Secretary, IEC, SCTIMST dated 10.01.2025
2. Proposal
3. Participant Information Sheets in English and Tamil
4. Informed Consent Form in English and Tamil
5. Interview Schedule in English and Tamil
6. Questionnaire in English and Tamil

IEC Decision

The IEC approved the conduct of the study in the present form.

Remarks:

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,



Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
INSTITUTIONAL ETHICS COMMITTEE (IEC)
SCTIMST, THIRUVANANTHAPURAM



Annexure 8 – Plagiarism report

Thesis - final draft-Lenin 50372

By: Lenin A 50372

As of: Apr 29, 2025 11:18:05 AM
13,484 words - 107 matches - 29 sources

Similarity Index

8%

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paper text:

Abstract Background: Prostate cancer is a leading cancer among men globally. In India, rural men often lack knowledge

about prostate cancer 's risk factors, symptoms, and the importance of early

6

screening. This study aimed to evaluate the awareness levels

of prostate cancer among men aged 40 and above in

2

Oddanchatram, Tamil Nadu, focusing on their understanding of risk factors, symptoms, and early detection. Methods: This cross-sectional study was conducted across all 18 wards in Oddanchatram municipality, sampling men aged 40 and above using systematic sampling covering the sample size of 216. Data was collected through an interviewer-administered questionnaire covering demographic details,