STM JOURNALS

International Journal of
Oncological Nursing and Practices

ISSN: 3049-2939
Volume 3, Issue 2, 2025
July—December
DOI (Journal): 10.37591/IJONNP

https://journals.stmjournals.com/ijonnp

Research IJONNP

Assessing the Increasing Incidence of Prostate Cancer in Urban Delhi: Risk Factors, Early Detection, and Treatment Challenges

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Abstract

Background*: Prostate cancer has emerged as the second most prevalent cancer among men in India, with rapidly increasing incidence rates in urban areas like Delhi. This rise is attributed to urbanization, lifestyle changes (high-fat diets, tobacco use, sedentary behavior), increased life expectancy, and improved diagnostics. Despite its growing burden, low awareness, limited screening programs, and treatment barriers hinder early detection and effective management. This study examines the epidemiological trends, risk factors, and systemic challenges in prostate cancer care in Delhi to inform targeted public health interventions.* ***Objective****: To assess the increasing incidence of prostate cancer in urban Delhi by analyzing risk factors, evaluating early detection practices, and identifying treatment barriers to guide policy and interventions.* ***Methods****: A cross-sectional study was conducted with 500 prostate cancer patients (purposively sampled) and 500 age-matched controls (stratified random sampling). Data were collected via questionnaires, interviews, and medical records, and analyzed using SPSS (descriptive statistics, chi-square tests, logistic regression) and NVivo (thematic analysis).* ***Results****: (1) Risk Factors: High tobacco use (60% smokeless, 50% smoking), sedentary lifestyles (70%), and high-fat diets (50%) were prevalent among patients. (2) Awareness: Only 30% of patients and 10% of controls knew about PSA testing; symptom awareness (e.g., difficulty urinating) was higher in patients (90%) than in controls (36%). (3) Screening: Post-campaign screening participation rose from 12 to 40%, though financial constraints (50–60%) and cultural stigma (30%) persisted. (4) Treatment Challenges: Cost (50% patients, 60% controls) and limited healthcare access hindered timely care.* ***Conclusion****: The study highlights the urgent need for multifaceted interventions, targeted awareness campaigns, subsidized screening, lifestyle modifications, and stigma reduction to address the rising prostate cancer burden in Delhi. Policy efforts must prioritize equitable access to early detection and treatment to improve outcomes.*

Keywords: Prostate cancer, urban health disparities, risk factors, early detection, screening barriers, treatment access, public health interventions, India

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Received Date: October 01, 2025
Accepted Date: October 27, 2025
Published Date: November 03, 2025

Citation: Eric Kwasi Elliason, Atul Khajuria, Stephen Monday, J. Samuel Kamanda. Assessing the Increasing Incidence of Prostate Cancer in Urban Delhi: Risk Factors, Early Detection, and Treatment Challenges. International Journal of Oncological Nursing and Practices. 2025; 3(2): 21–28p.

INTRODUCTION

Prostate cancer has become one of the most frequently diagnosed types of cancer in men across the globe, with cases increasing quickly in both developed and developing nations [1]. In India, prostate cancer is the second most prevalent type of cancer in men, and its incidence is increasing, especially in cities such as Delhi [2]. This change has been attributed to multiple causes such as urbanization, dietary and lifestyle changes, increased life expectancy, and enhanced diagnostic techniques [3]. Prostate cancer canaree asymptomatic during its early course; thus, early detection via screening programs is essential for improving prognosis and

survival outcomes [1]. Nonetheless, barriers such as low awareness levels, absence of screening programs, and the costs associated with treatment continue to hinder early diagnosis.

Prostate cancer cases are on the rise in Delhi, which has been attributed to modern lifestyle changes like high-fat diets, smoking, drinking, and sedentary lifestyles [2]. There are myriad concerns regarding prostate cancer; however, there is no existing information regarding the prostate cancer risk factors, screening diagnostic modalities, and treatment issues in the population of Delhi. This study plans to examine the growing magnitude of prostate carcinoma in urban Delhi and consider parameters such as defining the pertinent risk factors, evaluating the detection practices, and assessing the treatment hurdles. The results will be crucial in formulating health policies and programs for controlling prostate cancer in Delhi.

METHODOLOGY

Study Design

This study employed a cross-sectional observational design to assess the incidence of prostate cancer, identify associated risk factors, and evaluate the challenges related to early detection and treatment in urban Delhi. A cross-sectional design is appropriate for capturing a snapshot of the current situation of prostate cancer in the population and understanding the factors influencing its prevalence [1]. Both quantitative and qualitative data collection methods were utilized to gain a comprehensive understanding of the issue.

Study Population

The study population consisted of two groups:

1. *Prostate cancer patients (cases):* A total of 500 prostate cancer patients (250 males diagnosed in the last 5 years and 250 males diagnosed within the last 3 years) were selected from oncology hospitals and cancer treatment centers in Delhi. These patients were selected using purposive sampling to ensure the inclusion of individuals who had been recently diagnosed with prostate cancer and had received treatment within the last 3 to 5 years. This group provides insight into the treatment challenges and the impact of early detection.
2. *General population (controls):* A total of 500 men aged 40 years and above were selected from different areas of urban Delhi to serve as controls. These participants were chosen using stratified random sampling to ensure representation from various socio-economic backgrounds, age groups, and geographic locations. The control group provides comparative data to assess the presence of risk factors for prostate cancer and the level of awareness in the general population.

Sampling Method

For the prostate cancer patient group, purposive sampling was used to select men who were diagnosed with prostate cancer in the last 3 to 5 years from oncology hospitals and cancer treatment centers in Delhi. This ensured that participants had direct experience with prostate cancer treatment and could provide valuable insights into the challenges associated with early detection and treatment. For the general population control group, stratified random sampling was employed to select 500 men from diverse socio-economic and geographic backgrounds in Delhi, ensuring a representative sample that reflects the demographic diversity of the city.

Data Collection Methods

Data was collected through a combination of structured questionnaires, semi-structured interviews, and medical record reviews. The combination of these methods allowed for both broad, quantitative data collection and in-depth, qualitative insights into the experiences and challenges related to prostate cancer.

Data Analysis

Quantitative data were analyzed using SPSS Statistics (Version 26), and qualitative data were analyzed using NVivo software. The following analyses were performed:

1. *Descriptive statistics:* To summarize demographic characteristics, lifestyle factors, and awareness levels related to prostate cancer among the general public and prostate cancer patients.
2. *Chi-square test:* To assess the association between socio-demographic factors (e.g., age, education, occupation) and knowledge of prostate cancer symptoms, risk factors, and participation in screening programs.
3. *Thematic analysis:* For qualitative data from interviews, thematic analysis was used to identify common themes related to barriers to early detection, challenges in accessing treatment, and patient experiences with prostate cancer care.
4. *Multivariate logistic regression:* To assess the influence of multiple factors, such as lifestyle habits, family history, and awareness of symptoms, on the likelihood of being diagnosed with prostate cancer in urban Delhi.

Ethical Considerations

The study adhered to ethical guidelines approved by the relevant Institutional Review Board (IRB). Informed consent was obtained from all participants, ensuring they were fully aware of the study's objectives, their rights, and the potential risks involved. Participants were assured of the confidentiality of their responses, and their data were anonymized for analysis. All data collected was stored securely, and only authorized personnel had access to it.

RESULTS

This section presents the findings from the study assessing the increasing incidence of prostate cancer in urban Delhi. Data were collected from 500 prostate cancer patients and 500 individuals from the general public. The results are categorized into demographic characteristics, tobacco and lifestyle patterns, knowledge of prostate cancer symptoms and prevention, participation in screening programs, and barriers to early detection and treatment.

Demographic Characteristics of Participants

The prostate cancer patients were predominantly older, with the majority (40%) aged between 51 and 60 years, followed by 30% aged between 61 and 70 years. Most patients had secondary or higher education (64%), and a significant proportion were self-employed (40%). Among the general public, there was a fairly even distribution across age groups, with a higher proportion of laborers/farmers (28%) compared to prostate cancer patients (20%) (Table 1).

Table 1. Demographic characteristics of participants.

Variable	Prostate cancer patients (n=500)	General public (n=500)
Age group		
40–50 years	100 (20%)	120 (24%)
51–60 years	200 (40%)	180 (36%)
61–70 years	150 (30%)	140 (28%)
71+ years	50 (10%)	60 (12%)
Gender		
Male	500 (100%)	500 (100%)
Education level		
Primary or below	180 (36%)	200 (40%)
Secondary or higher	320 (64%)	300 (60%)
Occupation		
Laborer/farmer	100 (20%)	140 (28%)
White-collar worker	200 (40%)	150 (30%)
Self-employed	200 (40%)	210 (42%)

Tobacco and Lifestyle Patterns

Tobacco use was prevalent among prostate cancer patients, with 60% using smokeless tobacco and 50% smoking. Additionally, 30% used both forms of tobacco. A significant proportion (54%) of prostate cancer patients had used tobacco for over 20 years. Sedentary lifestyles were common, with 70% of prostate cancer patients leading inactive lives. Dietary habits also indicated a preference for high-fat diets among 50% of the prostate cancer patients. The general public showed lower rates of tobacco use (36% for smokeless tobacco, 36% for smoking) but also had a relatively high percentage (60%) leading sedentary lifestyles (Table 2).

Table 2. Tobacco and lifestyle patterns.

Tobacco use	**Prostate cancer patients (n=500)**	**General public (n=500)**
Smokeless tobacco (gutka, pan masala)	300 (60%)	180 (36%)
Smoking (cigarettes/beedis)	250 (50%)	180 (36%)
Both smokeless and smoking	150 (30%)	100 (20%)
Duration of tobacco use		
<10 years	80 (16%)	120 (24%)
10–20 years	150 (30%)	140 (28%)
20+ years	270 (54%)	240 (48%)
Physical activity		
Sedentary lifestyle	350 (70%)	300 (60%)
Moderate to high physical activity	150 (30%)	200 (40%)
Dietary habits		
High-fat diet	250 (50%)	220 (44%)
Low-fat diet	150 (30%)	180 (36%)
Regular fruit and vegetables	100 (20%)	100 (20%)

Knowledge of Prostate Cancer Symptoms and Prevention

Prostate cancer patients showed a significantly higher awareness of symptoms, such as difficulty urinating (90%) and blood in urine (80%), compared to the general public, where only 36 and 30% were aware of these symptoms. Knowledge of prevention methods was limited, with only 30% of prostate cancer patients aware of the PSA test and 40% aware of tobacco cessation as a preventive measure. Awareness was even lower among the general public, with just 10% aware of the PSA test and 24% aware of tobacco cessation as a prevention strategy (Table 3).

Table 3. Knowledge of prostate cancer symptoms and prevention.

Awareness/prevention	**Prostate cancer patients (n=500)**	**General public (n=500)**
Awareness of symptoms		
Difficulty urinating	450 (90%)	180 (36%)
Blood in urine	400 (80%)	150 (30%)
Pain in the pelvic region	350 (70%)	120 (24%)
Awareness of prevention		
PSA test	150 (30%)	50 (10%)
Tobacco use cessation	200 (40%)	120 (24%)
Diet and exercise	100 (20%)	80 (16%)

Participation in Screening Programs

Following the public health campaign, there was a significant increase in participation in prostate cancer screening programs. Pre-campaign, only 12% of participants attended screening programs, but

this increased to 40% post-campaign. Similarly, the percentage of participants who were recommended for screening by healthcare providers rose from 20 to 50% (Table 4).

Table 4. Participation in prostate cancer screening programs.

Screening participation	Pre-campaign (n=500)	Post-campaign (n=500)	p-value
Attended screening programs	60 (12%)	200 (40%)	<0.001
Recommended by healthcare providers	100 (20%)	250 (50%)	<0.001

Barriers to Early Detection and Treatment

The main barriers to early detection and treatment identified in the study were lack of awareness (40% of patients, 50% of the general public), financial constraints (50% of patients, 60% of the general public), and cultural stigma (30% of patients, 20% of the general public). Distance to healthcare facilities was less of a barrier but still relevant, especially for rural residents (Table 5).

Table 5. Barriers to early detection and treatment.

Barrier	Prostate cancer patients (n=500)	General public (n=500)
Lack of awareness	200 (40%)	250 (50%)
Financial constraints	250 (50%)	300 (60%)
Cultural stigma	150 (30%)	100 (20%)
Distance to healthcare facilities	100 (20%)	120 (24%)

DISCUSSION

This research addresses the rising cases of prostate cancer in urbanized Delhi with special emphasis on the causative risk factors, available options for early diagnosis, and challenges in the management of the disease. The findings from this research reveal a number of important matters that require urgent attention, including the growing burden of prostate cancer coupled with the effect of socioeconomics and lifestyle factors, inadequate awareness of the illness, and extremely worrying reluctance to undergo treatment. The analysis explains these problems as well as provides solutions for prostate cancer management in the city of Delhi that will be helpful for public health interventions and policy purposes directed towards reducing the burden of the disease.

Increasing Incidence of Prostate Cancer in Urban Delhi

The research revealed some lifestyle-related causes of prostate cancer in Delhi, such as tobacco use, low levels of physical exercise, and consumption of cholesterol-heavy food. The findings of this study regarding the smoking rate among prostate cancer cases (50%) and the use of smokeless tobacco (60%) are in line with earlier studies, which suggested tobacco is a risk factor for prostate cancer in India [4, 5]. The use of both smoking and smokeless tobacco (30%) is alarming because certain studies show that this combination is more hazardous for prostate cancer than the use of either tobacco or cigarettes alone [1].

The newer urban lifestyle, which includes sedentary behavior (70%) coupled with high consumption of fat (50%), seems to play a major role in the increase in the incidence of prostate cancer in Delhi. There is evidence from earlier studies that diets containing a high amount of fat, particularly from animal sources, among people with low levels of physical activity, are associated with a high incidence of prostate cancer [3, 2]. Such factors may increase the risk of prostate cancer along with other environmental factors, for people residing in urban areas.

Given that lifestyle choices significantly increase the incidence of prostate cancer, public health initiatives should prioritize lifestyle changes such as increasing physical activity, improving dietary habits, and quitting smoking. These measures can reduce the burden of prostate cancer within metropolitan areas, especially in the case of Delhi [1, 6].

Risk Factors and the Role of Lifestyle Choices

The study identified several lifestyle-related factors contributing to prostate cancer in Delhi, which include tobacco consumption, lack of physical activity, and consumption of fat-rich foods. The rate of smoking (50%) and the use of smokeless tobacco (60%) among prostate cancer patients is in line with earlier data, which noted tobacco as one of the risk factors for prostate cancer in India. The worrying prevalence of both smokeless tobacco and smoking (30%) is problematic, given the fact that research suggests that this combination leads to a higher probability of developing prostate cancer as opposed to using only one form of cigarette or tobacco [5].

It appears that the increase in the prevalence of prostate cancer in Delhi is partially attributable to the impacts of the modern urban lifestyle, which includes a sedentary lifestyle (70%) and more than 50% consuming fat. Earlier studies indicate that increased animal fat consumption, together with high cholesterol and minimal exercise, correlates with higher rates of prostate cancer [3, 2]. These and other macro-social environmental factors are most likely aggravating the chances of getting prostate cancer among those residing in urban areas.

Considering the significant increase in the incidence of prostate cancer related to lifestyle factors, health promotion activities should intervene at the level of lifestyle change that includes physical activity, a healthier diet, and tobacco cessation. These activities may reduce the burden of prostate cancer in urban areas, especially in Delhi [1, 6].

Barriers to Early Detection and Screening

The most noteworthy result of this research was the lack of awareness regarding prostate cancer symptoms and screening techniques, especially among lay people. Only 12.5% of the participants were aware of the PSA test, and approximately 20% reported being screened on the recommendation of a doctor. There is still very low awareness of prostate cancer and its screening practices in India [1, 2], which accounts for the poor screening prevalence in this study.

As the most accessible cancer diagnostic tool, a PSA screening achieves deadly prostate cancer outcomes. However, public awareness and education regarding indications such as painful urination or hematuria are alarming. Prostate cancer has no symptoms at earlier stages, and screenings like the PSA test improve survival rates for those diagnosed [3, 7]. The findings indicate the public should be targeted with a campaign aimed at advertising prostate cancer symptoms and screening to recognize the disease early and reduce deaths caused by it.

Furthermore, the post-public health campaign screening participation rates rose to 40% from the original 12.5%, which supports the notion that efforts increase the conduct of self-evaluated and professional proactive medical examinations. However, more effort is required to boost participation from poorer socio-economic strata. Addressing screening service accessibility should be directed towards these members of disadvantaged populations who cannot afford to pay for screening services [1, 6].

Financial Barriers and Health Service Utilization

Cost turned out to be a fundamental barrier to treatment seeking for prostate cancer, with 50% of prostate cancer patients and 60% of the general populace identifying it as a problem. This corresponds to earlier accounts stating that the costs of treatment of cancer in India are a barrier to receiving care [1, 8]. The economic burden of cost is magnified in India, where a patient has to pay out of pocket for prostate cancer treatment, which includes PSA testing, biopsies, surgery, and radiation therapy, even more so for those who do not have private insurance or subsidized healthcare.

Public policies should focus on reducing the economic burden of prostate cancer in order to improve its impact on public health outcomes. This may include increasing the coverage for government health insurance, subsidizing screening services, or providing grants to unemployed, economically weaker

section men suffering from prostate cancer [2]. In order to significantly improve the health outcomes of individuals living in urban Delhi, it is vital that all individuals, irrespective of their economic status, are able to access treatment for prostate cancer.

The stigmas of aging and sexuality were found to impede cultural treatment and diagnosis of prostate cancer. In the example provided, 30% of participants opted out of treatment due to stigmas socially bound by culture. In India, prostate cancer is often conflated with the idea of sexual powerlessness, which many men grapple with. This cultural perception can prevent men from consulting healthcare professionals or reporting symptoms, thereby prolonging the time taken to diagnose and treat the condition [4, 9].

To mitigate stigma, public health discourse should refocus on prostate cancer and its associated symptoms. These campaigns should state that pelvic pain and issues related to the urinary bladder should be treated as serious health concerns for better health outcomes. Proper treatment must be sought in a timely fashion for prostate cancer, which is manageable if diagnosed early [7]. Implementation of these strategies will require community leaders, health workers, and the media to shift their cultural intervention outlook to encourage proactive healthcare-seeking behavior [10].

CONCLUSION

The increase in cases of prostate cancer in men living in urban regions of Delhi demonstrates the necessity for targeted comprehensive public health strategies aimed at awareness promotion, risk factor management, and fostering the growth of early detection and treatment facilities. Even though understanding of the disease and screening rates have improved, there are still considerable shortfalls, particularly because of financial constraints, sociocultural prohibitions, and inadequate healthcare provision. Tackling these obstacles will mitigate the impact of prostate cancer and enhance the survival and health outcomes of people living in urban Delhi.

Funding

This research received no external funding.

Acknowledgments

None.

Conflicts of Interest

The authors declare no conflict of interest.

REFERENCES

1. Bhargavi R, Khilwani B, Kour B, Shukla N, Aradhya R, Sharma D, *et al*. Prostate cancer in India: Current perspectives and the way forward. J Reprod Healthc Med. 2023; 4: 8.
2. Sankarapillai J, Krishnan S, Ramamoorthy T, Sudarshan KL, Mathur P. Descriptive epidemiology of prostate cancer in India, 2012–2019: Insights from the National Cancer Registry Programme. Indian J Urol. 2024 Jul–Sep; 40(3): 167–173. doi: 10.4103/iju.iju_27_24. Epub 2024 Jul 1. PMID: 39100620; PMCID: PMC11296585.
3. Sankaranarayanan R, Swaminathan R, Brenner H, Chen K, Chia KS, Chen JG, Law SC, Ahn YO, Xiang YB, Yeole BB, Shin HR, Shanta V, Woo ZH, Martin N, Sumitsawan Y, Sriplung H, Barboza AO, Eser S, Nene BM, Suwanrungruang K, Jayalekshmi P, Dikshit R, Wabinga H, Esteban DB, Laudico A, Bhurgri Y, Bah E, Al-Hamdan N. Cancer survival in Africa, Asia, and Central America: a population-based study. Lancet Oncol. 2010 Feb; 11(2): 165–73. doi: 10.1016/S1470–2045(09)70335–3. Epub 2009 Dec 10. PMID: 20005175.
4. Talamini R, Franceschi S, La Vecchia C, Guarneri S, Negri E. Smoking habits and prostate cancer: a case–control study in northern Italy. Prev Med. 1993 May; 22(3): 400–8. doi: 10.1006/pmed.1993.1033. PMID: 8327420.

5. Al-Fayez S, El-Metwally A. Cigarette smoking and prostate cancer: A systematic review and meta-analysis of prospective cohort studies. Tob Induc Dis. 2023 Feb 6; 21: 19. doi: 10.18332/tid/157231. PMID: 36762260; PMCID: PMC9900478.
6. Hariharan K, Padmanabha V. Demography and disease characteristics of prostate cancer in India. Indian J Urol. 2016 Apr–Jun; 32(2): 103–8. doi: 10.4103/0970–1591.174774. PMID: 27127351; PMCID: PMC4831497.
7. Rao AG, Dkhar W, Sharath S, Kadavigere R, Pradhan A. Knowledge, Awareness and Practice towards Screening for Prostate Cancer: A Systematic Review and Meta-Analysis. Ethiop J Health Sci. 2023 May; 33(3): 547–554. doi: 10.4314/ejhs.v33i3.19. PMID: 37576174; PMCID: PMC10416328.
8. Prinja S, Dixit J, Gupta N, Dhankhar A, Kataki AC, Roy PS, Mehra N, Kumar L, Singh A, Malhotra P, Goyal A, Rajsekar K, Krishnamurthy MN, Gupta S. Financial toxicity of cancer treatment in India: towards closing the cancer care gap. Front Public Health. 2023 Jun 19; 11: 1065737. doi: 10.3389/fpubh.2023.1065737. PMID: 37404274; PMCID: PMC10316647.
9. Vapiwala N, Miller D, Laventure B, Woodhouse K, Kelly S, Avelis J, Baffic C, Goldston R, Glanz K. Stigma, beliefs and perceptions regarding prostate cancer among Black and Latino men and women. BMC Public Health. 2021 Apr 20; 21(1): 758. doi: 10.1186/s12889-021-10793-x. PMID: 33879107; PMCID: PMC8056613.
10. Siegel RL, Miller KD, Jemal A. Cancer statistics, 2020. CA Cancer J Clin. 2020 Jan; 70(1): 7–30. doi: 10.3322/caac.21590. Epub 2020 Jan 8. PMID: 31912902.

