

Prevalence of Types of Cancer in Ahilyanagar District: A Retrospective Study

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Abstract

Background:

Cancer poses a growing public health challenge in India, yet regional data remain scarce. This study evaluates the prevalence and distribution of cancer types in Ahilyanagar district, Maharashtra.

Methods: A retrospective observational study was conducted using patient data collected from healthcare facilities, cancer registries, and pathology laboratories in Ahilyanagar district. Data from a total of 528 patients diagnosed with cancer over a six-month period were analyzed. The study focused on identifying the frequency of different cancer types and associated trends.

Results: The most common cancers were buccal mucosa (17.8%), breast (14.2%), and cervical (11.3%). High oral cancer rates were linked to tobacco and betel nut use, while cervical and breast cancer prevalence reflected poor screening access and lifestyle changes.

Conclusion: Ahilyanagar district faces a significant burden of preventable cancers. Region-specific strategies—including early detection, HPV vaccination, and anti-tobacco campaigns—are essential to reduce cancer morbidity and mortality.

Keywords: Cancer prevalence, Ahilyanagar, oral cancer, cervical cancer, retrospective study

INTRODUCTION

Cancer remains one of the leading causes of morbidity and mortality worldwide, with its incidence steadily increasing due to aging populations, lifestyle changes, and environmental factors. According to the GLOBOCAN 2020 report, approximately 19.3 million new cancer cases and 10 million cancer-related deaths were recorded globally in 2020, making cancer a significant public health concern.¹ In India, cancer is a growing challenge, with an estimated 1.39 million new cases and 850,000 deaths annually, ranking it among the leading causes of death in the country.² The increasing burden of cancer is attributed to multiple factors, including genetic predisposition, changing dietary patterns, tobacco and alcohol consumption, air pollution, and occupational hazards.³ Despite advancements in cancer diagnosis and treatment, the disease burden is not uniform across different populations. Cancer incidence and mortality vary significantly depending on geographical location, socioeconomic status, healthcare infrastructure, and individual lifestyle choices.⁴

In India, urban regions often experience a higher prevalence of cancers such as breast, lung, and colorectal cancer, largely due to sedentary lifestyles, obesity, and late-stage pregnancies. In contrast, rural areas report a higher burden of tobacco-related cancers, such as oral, oesophageal, and lung cancer, driven by the

widespread use of smokeless tobacco, betel nut consumption, and exposure to biomass fuel.⁵ These variations highlight the importance of region-specific epidemiological studies to understand cancer patterns and design effective interventions tailored to local risk factors. Despite the overall increase in cancer cases, limited regional data exist to accurately assess the cancer burden in smaller districts like Ahilyanagar, making it essential to conduct localized research to understand trends and risk factors in this region.

Ahilyanagar district, located in Maharashtra, India, presents a unique demographic profile, consisting of both urban and rural populations. The district has a large agricultural workforce, increasing the likelihood of exposure to occupational carcinogens such as pesticides, fertilizers, and agrochemicals, which have been associated with an increased risk of hematologic malignancies, lung cancer, and prostate cancer.³ Long-term exposure to pesticides and industrial pollutants has been linked to DNA damage and disruptions in cellular function, further increasing cancer susceptibility.⁶ Apart from occupational risks, lifestyle factors such as tobacco use, alcohol consumption, poor dietary habits, and limited access to healthcare contribute significantly to cancer prevalence in this region.⁷ The high rates of smokeless tobacco consumption among men and women in rural Maharashtra correlate with the high incidence of oral and oesophageal cancers.⁴ Moreover, limited awareness and access to preventive healthcare services further delay diagnosis, leading to advanced-stage cancer detection and poor survival rates.

Cervical cancer remains a major public health issue in India, despite being largely preventable through HPV vaccination and routine screening programs. India accounts for nearly 21% of global cervical cancer cases, and factors such as early marriages, multiple pregnancies, poor genital hygiene, and lack of awareness contribute to its high prevalence.⁸ In contrast, breast cancer has now surpassed cervical cancer as the most frequently diagnosed malignancy among Indian women, with incidence rates rising due to urbanization, delayed childbearing, reduced breastfeeding, obesity, and lifestyle changes.² Given these disparities, understanding the prevalence, distribution, and risk factors associated with different cancer types in the Ahilyanagar district is crucial for public health planning, resource allocation, and targeted prevention strategies.

Despite the rising cancer burden, there is limited research evaluating the prevalence and patterns of cancer types in Ahilyanagar district. The absence of comprehensive cancer registries and underreporting from smaller healthcare facilities further complicates the assessment of cancer incidence, risk factors, and mortality rates.⁵ Identifying the most common cancer types and their associated risk factors is essential for optimizing resource distribution, developing targeted awareness campaigns, and improving early detection and treatment services. Addressing these gaps in knowledge will help in establishing evidence-based cancer control measures for the region.

This study is a retrospective analysis aimed at examining the prevalence and distribution of various types of cancer in Ahilyanagar district. By utilizing historical data from healthcare facilities, cancer registries, and pathology laboratories, this research will provide insights into cancer incidence, trends, and associated risk factors. The study seeks to identify demographic and environmental influences, such as occupational exposures, lifestyle habits, and socioeconomic conditions, that may contribute to the regional cancer burden. The findings of this research have the potential to inform policymakers and healthcare professionals, aiding in the development of targeted cancer awareness campaigns, early detection initiatives, and improved diagnostic and treatment services tailored to Ahilyanagar's unique healthcare needs. Ultimately, this study aims to contribute to reducing cancer morbidity and mortality in the Ahilyanagar district, thereby improving healthcare outcomes and quality of life for the affected population.

Research Question

What is the prevalence and distribution of different types of cancer in Ahilyanagar district, and what demographic and environmental factors are associated with these patterns?

Aim

To analyze the prevalence and distribution of various types of cancer in Ahilyanagar district through a retrospective study, identifying patterns, trends, and associated factors to inform public health strategies and cancer control measures.

Objectives

1. To determine the prevalence of different types of cancer in Ahilyanagar district over a defined retrospective period using data from healthcare facilities, cancer registries, and pathology laboratories.
2. To analyse temporal trends.
3. To raise awareness about cancer burden

Methodology: -

Study Design: Retrospective observational study

Study Type: Descriptive epidemiological study

Study Period: Last 6 months (e.g., January 2025 – June 2025)

Sample Size: Total number of cancer cases = 528

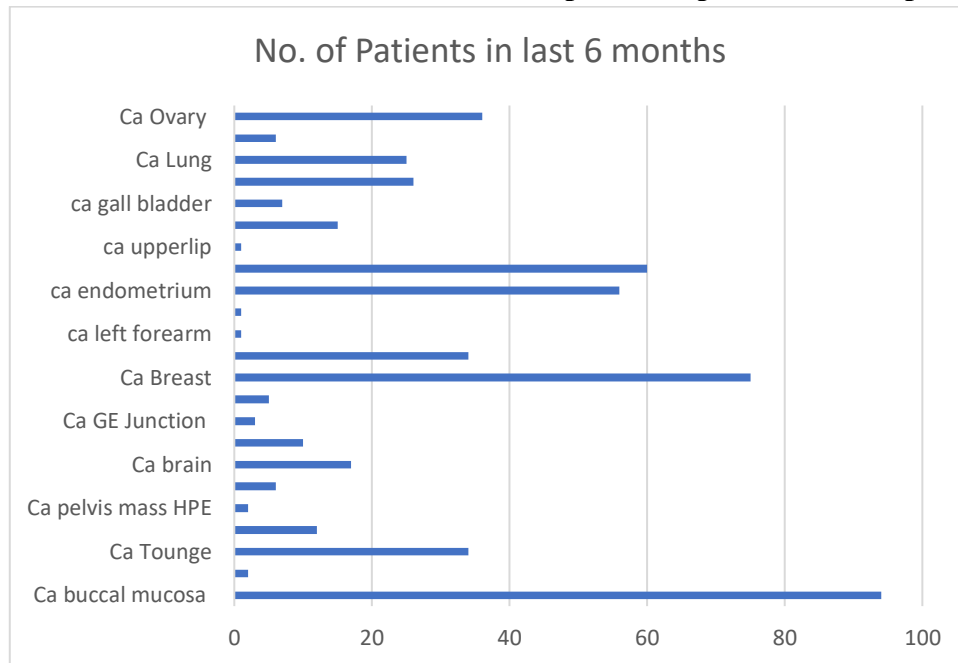
Sampling Method: Convenience sampling using secondary data from healthcare records, registries, and pathology reports in Ahilyanagar district hospitals and clinics

Results

Types of Cancer (Ca)	No. of Patients in last 6 months	Percentage
Ca buccal mucosa	94	17.8030303
Ca oral Cavity	2	0.378787879
Ca Tounge	34	6.439393939
Ca oesophagus	12	2.272727273
Ca pelvis mass HPE	2	0.378787879
Ca Rib lesion	6	1.136363636
Ca brain	17	3.21969697
lymphadenopathy	10	1.893939394
Ca GE Junction	3	0.568181818
Ca Throat	5	0.946969697
Ca Breast	75	14.20454545
Ca prostate	34	6.439393939
ca left forearm	1	0.189393939
ca lower alveoli	1	0.189393939
ca endometrium	56	10.60606061
ca cervix	60	11.36363636
ca upperlip	1	0.189393939

ca alveolus	15	2.840909091
ca gall bladder	7	1.325757576
ca Rectum	26	4.924242424
Ca Lung	25	4.734848485
Ca Spine	6	1.136363636
Ca Ovary	36	6.818181818

Graph. No. 1 Shows Distribution of Data for cancer patient reported in 6 the period of month



Discussion

The present study highlights the prevalence and distribution of various types of cancer in Ahilyanagar district, with buccal mucosa cancer, cervical cancer, and breast cancer emerging as the most frequently diagnosed cancers. These findings align with national cancer trends, emphasising the need for targeted interventions to address modifiable risk factors, improve early detection, and enhance healthcare accessibility.

Buccal mucosa cancer, a subset of oral cancers, was the most common malignancy observed in this study. This high prevalence is likely due to the widespread use of tobacco products, including smokeless tobacco, betel nut, and gutkha, which are deeply ingrained in the social and cultural habits of rural and semi-urban populations. Studies indicate that oral cancers account for nearly 30% of all malignancies in India, with tobacco use being the primary risk factor.⁴ Additionally, poor oral hygiene, dietary deficiencies, and a lack of routine oral health check-ups contribute to late-stage diagnosis and poor survival rates.⁷ Public health initiatives must focus on large-scale anti-tobacco campaigns, early screening programs, and community-based awareness initiatives to address this burden. Integrating oral cancer screenings into routine healthcare services, particularly in primary healthcare centers, could significantly improve early detection rates and reduce mortality.

Cervical cancer was the second most prevalent malignancy in this study, consistent with national data indicating that it remains one of the leading causes of cancer-related deaths among women in India.

Despite being largely preventable through HPV vaccination and routine Pap smear screening, cervical cancer continues to pose a major public health challenge, particularly in rural areas where awareness and access to preventive healthcare are limited.⁸ The high prevalence observed in Ahilyanagar district can be attributed to factors such as early marriages, multiple pregnancies, poor genital hygiene, and a lack of screening programs.⁹ Furthermore, the absence of organized HPV vaccination programs exacerbates the problem, as studies show that HPV infection is responsible for over 95% of cervical cancer cases.⁵ Strengthening preventive strategies, including mobile cervical cancer screening camps and HPV vaccination drives targeting adolescent girls, could significantly reduce the burden of this disease.

Breast cancer emerged as the third most common malignancy in this study, reflecting the increasing incidence of this disease across India. According to recent data, breast cancer has surpassed cervical cancer as the most frequently diagnosed cancer among Indian women, particularly in urban regions.¹¹ The rising incidence can be attributed to lifestyle changes, increased obesity rates, delayed childbearing, and reduced breastfeeding duration, all of which are known risk factors.¹¹ Additionally, the social stigma surrounding breast cancer, coupled with a lack of awareness about self-breast examinations and mammography screening, often leads to late-stage diagnosis and poor prognosis. To mitigate these challenges, community outreach programs should focus on educating women about early detection methods and promoting regular screenings. Establishing low-cost mammography units in district hospitals and training healthcare providers in early diagnosis could play a crucial role in improving breast cancer outcomes.

In addition to these three major cancers, the study also found a significant number of lung cancer and ovarian cancer cases. Lung cancer, with 20 reported cases, is likely linked to smoking, air pollution, and occupational exposures, particularly among agricultural workers who may be exposed to pesticides and other carcinogenic chemicals.³ Ovarian cancer, with 16 cases, highlights the need for improved diagnostic tools and awareness, as its symptoms are often vague and lead to delayed detection.⁵ The low prevalence of cancers such as oral cavity cancer (1 case) and rib lesion cancer (1 case) may be due to either genuine rarity or underreporting due to diagnostic limitations in smaller healthcare centers.

The findings of this study underscore the urgent need for region-specific cancer control strategies in Ahilyanagar district. A multi-faceted approach focusing on prevention, early detection, and improved healthcare infrastructure is essential. Preventive measures should include aggressive anti-tobacco campaigns, HPV vaccination programs, and widespread awareness initiatives about lifestyle-related cancer risks. Enhancing screening programs, such as oral health check-ups, Pap smears, and mammography screenings, can facilitate early diagnosis and better prognosis. Additionally, strengthening oncology services within district hospitals and ensuring affordable and accessible cancer treatment for underserved populations could significantly reduce cancer-related mortality in this region.

While this study provides valuable insights into the regional cancer burden, it is important to acknowledge its limitations. As a retrospective study relying on secondary data sources, potential underreporting and misclassification of cancer cases cannot be ruled out. Furthermore, the absence of detailed information on risk factors, cancer staging, and treatment outcomes limits the depth of analysis. Future research should incorporate prospective data collection methods and longitudinal studies to evaluate the impact of public health interventions on cancer prevalence and survival rates.

Conclusion

This study highlights the significant burden of buccal mucosa, cervical, and breast cancer in Ahilyanagar district, emphasizing the need for comprehensive public health initiatives tailored to the region's unique

demographic and environmental factors. By addressing modifiable risk factors, promoting early detection, and improving healthcare accessibility, it is possible to mitigate the overall cancer burden and enhance health outcomes for the population.

Conclusion: -

This retrospective study reveals a high prevalence of buccal mucosa, cervical, and breast cancers in Ahilyanagar, indicating an urgent need for region-specific cancer control strategies. Emphasizing tobacco control, early screening, HPV vaccination, and public awareness campaigns can significantly reduce the district's cancer burden and improve health outcomes.

Referances

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