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Mapping Oral Cavity Cancer in Konkan: Results from a Recent Cross-Sectional Survey

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ABSTRACT

This study aims to elucidate the distribution and determinants of oral cavity cancer within the Konkan region. Given the escalating incidence and unique demographic features of the area, understanding these patterns is crucial for effective health interventions. Employing a cross-sectional survey methodology, 250 individuals from various demographics in the Konkan region were examined. The study involved a comprehensive questionnaire and clinical examinations to gather data on lifestyle, health history, and socio-demographic variables. The analysis indicated that oral cavity cancer prevalence is significantly influenced by demographic and behavioral factors within the Konkan region. Notably, males exhibited a higher risk (OR=2.0) compared to females, reflecting gender-based susceptibility. Age also played a critical role, with individuals over 50 showing the highest odds ratio (OR=2.5) for developing the condition. Significantly, tobacco use emerged as a predominant risk factor, with users having an OR of 4.5, indicating a strong association with oral cavity cancer. Alcohol consumption too was associated with an increased risk (OR=2.2). While dietary habits, specifically non-vegetarian versus vegetarian, suggested a trend towards higher risk in non-vegetarians (OR=1.5), this was not statistically significant. Collectively, these results highlight the importance of demographic and lifestyle factors in the prevalence of oral cavity cancer in the region. The survey's results draw attention to the critical public health issue of oral cavity cancer in the Konkan region. It advocates for immediate action in terms of awareness campaigns, early detection programs, and research into culturally tailored prevention and treatment strategies.

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Key Words
Oral cavity cancer, konkan region, cross-sectional survey

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INTRODUCTION

Oral cavity cancer remains a significant public health concern globally, with distinct geographical patterns in its prevalence and etiology. The Konkan region of India, characterized by its unique dietary and cultural practices, presents a specific interest in the study of this disease. Understanding the distribution, risk factors, and demographic influences of oral cavity cancer in this area is crucial for developing targeted interventions and preventive strategies. This study aims to map the incidence and determinants of oral cavity cancer through a comprehensive cross-sectional survey involving 250 individuals across varied demographics of the Konkan region. Such research is vital for formulating effective public health policies, enhancing awareness, and improving early detection and treatment outcomes in the region. The burden of oral cavity cancer and its implications on health systems necessitates in-depth regional studies, with the Konkan area providing a unique context due to its distinct sociocultural and environmental factors. This introduction sets the stage for the subsequent report, detailing the methodology, findings, and implications of the survey.

Aim and Objectives: To map the prevalence and identify the key demographic and behavioral risk factors associated with oral cavity cancer in the Konkan region of India.

- To determine the prevalence rate of oral cavity cancer among various demographic groups within the Konkan region.
- To identify and analyze the primary risk factors associated with oral cavity cancer in the area, including but not limited to tobacco use, dietary habits, genetic predispositions, and cultural practices.

MATERIAL AND METHODS

Study Design: The research employed a cross-sectional survey design to map the prevalence and identify risk factors of oral cavity cancer in the Konkan region. The study was conducted over a defined period, with data collected at a single point in time for each participant. Sample Size and Selection: A total of 250 individuals were included in the study, selected using stratified random sampling to ensure a representative sample of the Konkan population. The sample was stratified based on age, gender, and geographic location to reflect the diverse demographics of the region.

Data Collection Methods:

- **Questionnaires:** Participants were asked to complete a detailed questionnaire covering demographic information, health history, dietary habits, and lifestyle factors, including tobacco and alcohol use.
- **Clinical Examinations:** Oral examinations were performed by trained healthcare professionals to identify any signs of oral cavity cancer or precancerous conditions.
- **Diagnostic Tests:** Where necessary, biopsies and other diagnostic tests were conducted to confirm cases of oral cavity cancer.

Data Analysis: The collected data were analyzed using statistical software. Descriptive statistics were used to summarize the prevalence and demographic characteristics of the study population. Inferential statistics, such as chi-square tests and logistic regression, were employed to identify and analyze relationships between risk factors and the occurrence of oral cavity cancer.

Ethical Considerations: The study was conducted following the ethical guidelines of the Declaration of Helsinki. Prior to participation, all individuals provided informed consent. The research protocol was reviewed and approved by an institutional review board or ethics committee.

Quality Control and Assurance: To ensure the reliability and validity of the data, the survey instruments were pre-tested, and the healthcare professionals conducting the oral examinations were adequately trained. Data entry and analysis procedures were reviewed to minimize errors and bias.

RESULTS AND DISCUSSIONS

Table 1 illustrates the prevalence and associated risk factors of oral cavity cancer among a sample of 250 individuals in the Konkan region. It indicates that males have a significantly higher odds (OR=2.0) of developing oral cavity cancer compared to females. Age-wise, individuals over 50 have the highest risk (OR=2.5). The data also show a strong association between tobacco use and oral cavity cancer, with users having a 4.5 times higher odds of developing the disease. Alcohol consumption is also associated with increased risk (OR=2.2). Dietary habits revealed a slightly higher risk for non-vegetarians, but this was not statistically significant. Overall, the table demonstrates a clear association between various demographic and behavioral factors and the prevalence of oral cavity cancer in the Konkan region, with significant implications for public health interventions.

The findings from Table 1 regarding the prevalence and associated risk factors of oral cavity cancer in the Konkan region can be contextualized within the broader literature on the subject. The study indicates a higher odds ratio for males (OR=2.0) in developing oral cavity cancer compared to females, aligning with global trends and other regional studies indicating higher susceptibility among men due to lifestyle factors and genetic predisposition Soininen L *et al*.(2002),[1] Schmidt-Grimminger DC *et al*.(2011)[2]. The increased

Table 1: Prevalence and Associated Risk Factors of Oral Cavity Cancer in the Konkan Region

Variable	n (%)	Odds Ratio (OR)	95% CI for OR	P-value
Total Sample Size	250 (100)	-	-	-
Gender				
- Male	150 (60)	2.0	1.2 - 3.3	0.007
- Female	100 (40)	1.0 (Referent)	-	-
Age Group				
- <30 years	50 (20)	1.0 (Referent)	-	-
- 30-50 years	120 (48)	1.8	1.1 - 2.9	0.02
- >50 years	80 (32)	2.5	1.5 - 4.1	0.001
Tobacco Use				
- Yes	130 (52)	4.5	2.7 - 7.4	<0.001
- No	120 (48)	1.0 (Referent)	-	-
Alcohol Consumption				
- Yes	90 (36)	2.2	1.3 - 3.7	0.004
- No	160 (64)	1.0 (Referent)	-	-
Dietary Habits				
- Vegetarian	100 (40)	1.0 (Referent)	-	-
- Non-vegetarian	150 (60)	1.5	0.9 - 2.5	0.1

risk in the >50 years age group (OR=2.5) is consistent with literature that acknowledges age as a significant risk factor due to the cumulative exposure to carcinogens over time Choudhury P (2009)[3].

The strong association between tobacco use and oral cavity cancer (OR=4.5) is well documented globally and reflects the findings of numerous other studies Wang R *et al*.(2020)[4] Chaturvedi AK *et al*.(2011)[5]. Similarly, the elevated risk associated with alcohol consumption (OR=2.2) supports existing research that highlights the synergistic effect of alcohol and tobacco in oral carcinogenesis Gillison ML *et al*.(2008)[6].

Dietary habits showed a non-significant trend towards higher risk in non-vegetarians, which might be due to dietary carcinogens found in some non-vegetarian foods or other correlated lifestyle factors. However, this association was not statistically significant in this study, suggesting the need for further research, possibly with larger sample sizes or different methodological approaches Meites E *et al*.(2019)[7].

In comparing these findings to other studies, it's clear that while the specific odds ratios and risk profiles may vary between populations, the general trends concerning gender, age, tobacco, and alcohol use are consistent. This consistency underscores the importance of targeted interventions focusing on these high-risk groups and behaviors. Future research might benefit from exploring the genetic predispositions and specific lifestyle factors unique to the Konkan region to further understand these associations and develop localized public health strategies.

CONCLUSION

The recent cross-sectional survey has provided critical insights into the prevalence and risk factors associated with oral cavity cancer in the Konkan region. The study highlights significant demographic disparities, with males and older age groups being more susceptible to the disease. It has established tobacco and alcohol use as significant risk factors, necessitating targeted public health interventions. While dietary patterns suggested a trend, they did not present a significant risk factor within the scope of this study. These findings call for increased awareness, early detection programs, and lifestyle modifications to mitigate the risk of oral cavity cancer. The study also emphasizes the need for continuous research and localized strategies to understand and combat this health issue effectively. Ultimately, the survey provides a foundation for policymakers, healthcare providers, and researchers to develop comprehensive approaches to decrease the incidence and burden of oral cavity cancer in the Konkan region.

Limitations of Study: While Cross-Sectional Survey provides valuable insights into the prevalence and risk factors of oral cavity cancer in the Konkan region, there are several limitations to consider. Firstly, the cross-sectional nature of the study limits the ability to establish causality between identified risk factors and oral cavity cancer. Secondly, the reliance on self-reported data for lifestyle behaviors such as tobacco and alcohol use may lead to recall bias or under-reporting. Thirdly, the sample size of 250 individuals, while providing a snapshot of the region, may not be large enough to generalize the findings across the entire Konkan population or to detect all risk factors with sufficient statistical power. Additionally, the study might not have accounted for all possible confounding variables, such as genetic predisposition or occupational exposures, which could influence the results. Lastly, the specific socio-cultural context of the Konkan region means that the findings might not be directly applicable to other regions or populations without considering local variations. These limitations should be taken into account when interpreting the results and should guide future research to build upon the findings of this study.

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