

An overview of tobacco related cancers in Patan district, Gujarat state

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INTRODUCTION:

Tobacco is the most widely distributed and commonly used drug in the world today. The tobacco habit usually begins during adolescence; overwhelming majority of tobacco intake starts before the age of 19 years. ^[1] Tobacco related cancers account for nearly 50% of all cancers among men and 25% of all cancers among women. The burden of tobacco related cancers in India by 2001 has been estimated to be nearly 0.33 million cases annually. These estimates are based on occurrence of cancer of mouth, pharynx, larynx, esophagus, lung, bladder and pancreas. ^[2] The number of newly diagnosed tobacco related cancers each year in India has been estimated approximately 2,50,000. ^[3] There are prediction of incidence of 7-fold increase in tobacco related cancer morbidity between 1995 and 2025. Further there will be an overall increase by 220% of cancer deaths simply related to tobacco use by the year 2025. ^[4] The WHO has estimated that 91% of oral cancer is directly attributable to tobacco usage. ^[5] Despite high predominance of tobacco related cancers in Gujarat (52% in men and 16% in women), there is a paucity of prevalence studies in the community. ^[6] Although tobacco deaths rarely make headlines, tobacco kills a third to half of all people who use it, on an average of 15 years prematurely. Tobacco epidemic death of 100 million in the 20th century was noted. Currently, it causes 5.4 million deaths every year. By 2030, the figure will rise to 8 million deaths every year and 80% of these tobacco related deaths will be in developing countries. The economic burden attributed to tobacco use is equally devastating. In addition to the enormous public health costs of treating tobacco related diseases, tobacco kills people at the height of their productivity, depriving families of bread-earners and nations of a healthy workforce. Tobacco users during their lifetime also have less productivity. ^[7]

MATERIALS AND METHODS:

Cancer is not a notifiable disease in India. So active registration of cancer cases were done in this study. This population based study was conducted by The Gujarat Cancer and Research Institute (GCRI) Ahmedabad and the geographical area of this study was Patan district of Gujarat state, India. Patan district has an area of 5,742.19 square kilometers. The district includes 7 talukas – Patan, Sami, Harij, Chanasma, Sidhpur, Radhanpur and Santalpur and 524 villages. More than 100 sources were covered for data collection including 61 collaborating hospitals. The Gujarat Cancer and Research Institute (GCRI), being a regional cancer center, the only comprehensive center for cancer treatment in Gujarat and has contributed a major share to the data generation. Trained staff filled the core Performa and collected all demographic and other necessary information of particular cases from GCRI and other sources. All new cases of cancer diagnosed in a defined population of Patan district between the period 1st Jan 2011 to 31st Dec 2011 were included in this study and tobacco related cancers (TRCs) were extracted.

The anatomical sites included as tobacco related cancers (TRCs) were Lip, Tongue, Mouth, Tonsil, Oropharynx, Hypopharynx, Pharynx, Esophagus, Larynx, Lung and Urinary Bladder. In this study data collection, data entry, coding and analysis were done as per the standards and norms prescribed by the National Cancer Registry Programme (NCRP) of Indian Council of Medical Research (ICMR).^[8] The sites of TRC were classified on the basis of ICD-10 for topography coding.^[9] Third Edition of International Classification of Disease for Oncology (ICD-O IIIrd edition) was used for morphology coding.^[10] Quality checks were done and duplicate cases were eliminated before analysis of the study.

RESULTS:

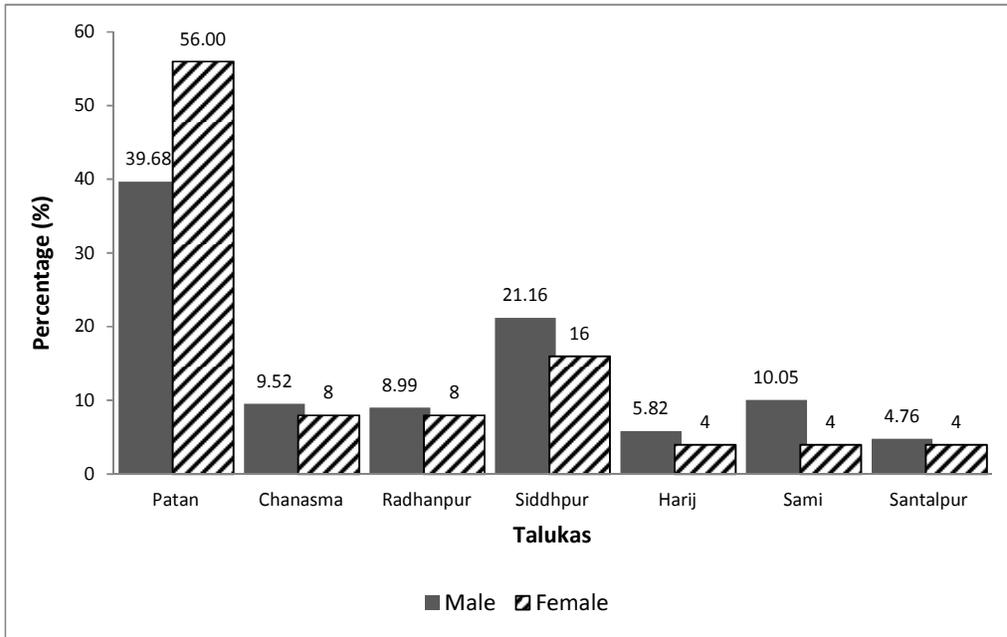
During the period from 1st Jan 2011 to 31st December 2011, out of 472 cases registered in Patan district, 214 cases (45.34%) were tobacco related cancers. Tobacco related cancers accounted for 61.29% (189 cases) of all male cancers and 15.43% (25 cases) of all female cancers. It shows higher tobacco prevalence in men as compare to women in Patan district. Among the tobacco related cancer sites in males, cancer of the tongue was the most common (23.28%) followed by cancer of lung (18.52%) and mouth (17.99%). These three sites together constitute 59.79% of total tobacco related cancers in males. In females, cancer of tongue alone accounted for 32% of the total tobacco related cancers followed by mouth (28%) and lung (16%). Number and proportion of tobacco related cancers by gender are shown in **Table I**.

Table : I Number (#) and Percentage (%) of tobacco related cancers by Gender

| ICD-O Codes | Site | Male | | Female | | Total | |
|--------------|-----------------|------------|------------|-----------|------------|------------|------------|
| | | # | % | # | % | # | % |
| C00 | Lip | - | - | - | - | - | - |
| C01-02 | Tongue | 44 | 23.28 | 8 | 32 | 52 | 24.30 |
| C03-06 | Mouth | 34 | 17.99 | 7 | 28 | 41 | 19.16 |
| C09 | Tonsil | 8 | 4.23 | 1 | 4 | 9 | 4.21 |
| C10 | Oropharynx | 4 | 2.12 | - | - | 4 | 1.87 |
| C12-13 | Hypopharynx | 23 | 12.17 | 1 | 4 | 24 | 11.21 |
| C14 | Pharynx | 12 | 6.35 | - | - | 12 | 5.61 |
| C15 | Oesophagus | 12 | 6.35 | 3 | 12 | 15 | 7.01 |
| C32 | Larynx | 15 | 7.94 | 1 | 4 | 16 | 7.48 |
| C33-34 | Lung | 35 | 18.52 | 4 | 16 | 39 | 18.22 |
| C67 | Urinary Bladder | 2 | 1.06 | - | - | 2 | 0.93 |
| TOTAL | | 189 | 100 | 25 | 100 | 214 | 100 |

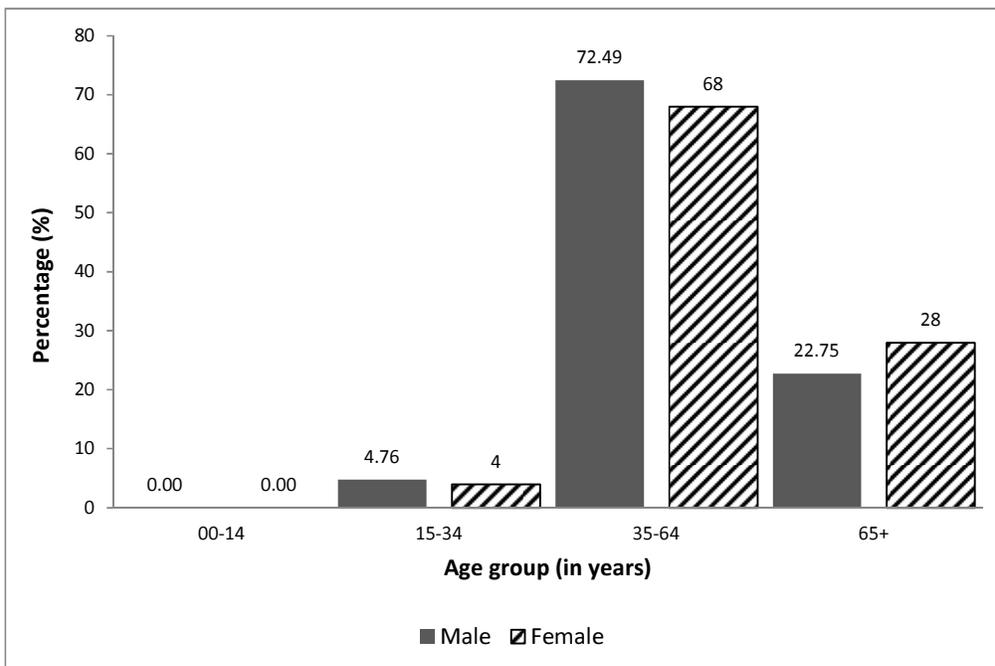
The higher proportion of tobacco related cancers were found in Patan (41.59%) and Siddhpur taluka (20.56%) according to **Figure I**.

Figure : I Gender and Taluka wise distribution (%) of TRCs in Patan district



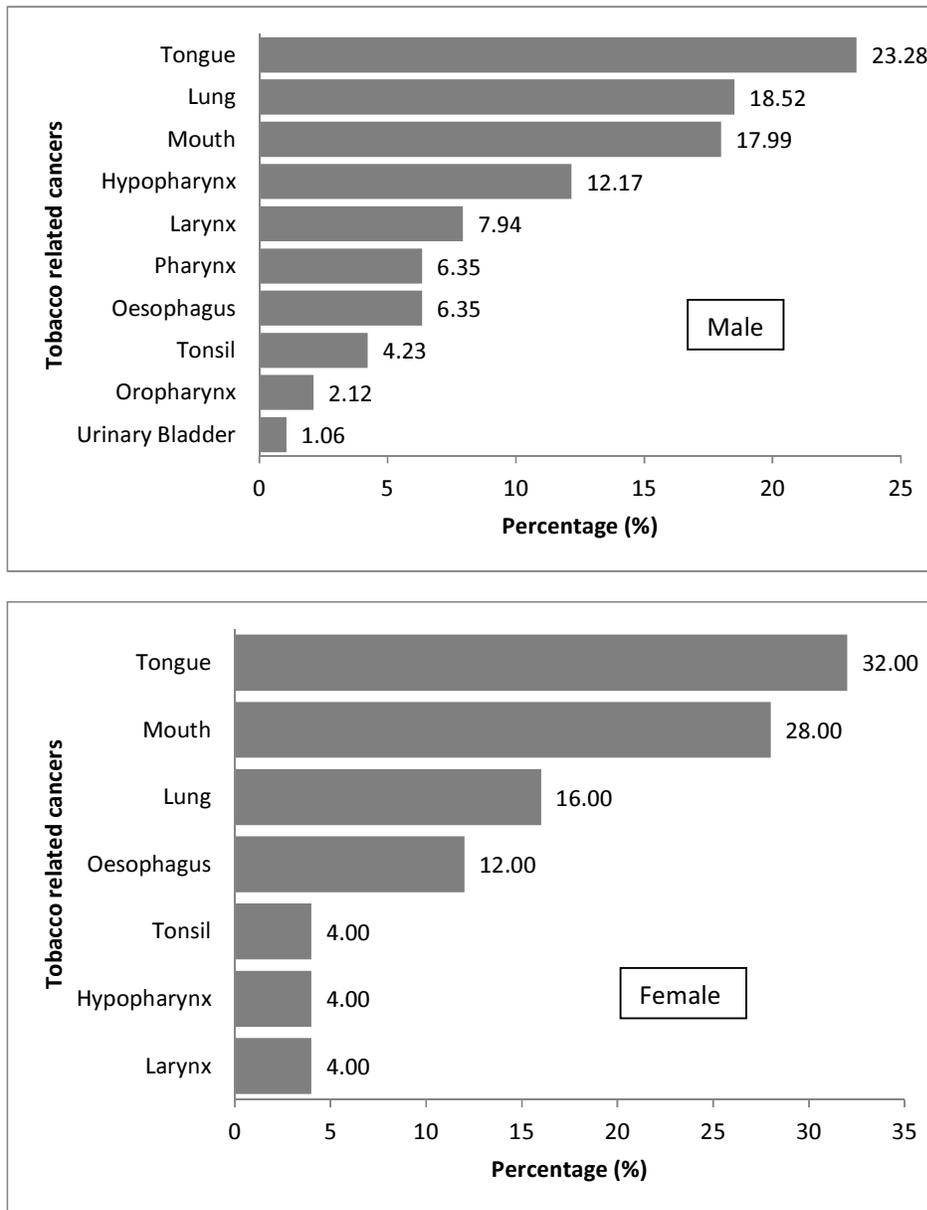
Most of the tobacco related cancers occurred in the age group of 35-64 years in both the sexes. 137 cases (72.49%) were males and 17 cases (68%) were females in same age group. Age wise distribution in both sexes were shown in **Figure II**.

Figure : II Gender and Age group wise distribution (%) of TRCs in Patan district



Leading sites in Tobacco related cancers as per their proportions in both the sexes were shown in **Figure III**.

Figure : III Proportion of TRCs in Males and Females in Patan district



DISCUSSION:

The most striking findings of this study was that in tongue, mouth and esophageal cancers, the proportion was higher in females as compare to males whereas in tonsil, oropharynx, hypopharynx, pharynx, larynx, lung and urinary bladder cancers the proportion was male preponderance. While comparing tobacco related cancers with other population based registries of Gujarat state, the study differs in the patterns of their occurrence. Cancer of oral cavity ranked first in Gandhinagar district and Ahmedabad rural area in males while tongue cancers ranked first in Patan district and Ahmedabad Urban area in males. In females, tongue cancer was the commonest site in Patan district and Ahmedabad urban whereas oral cavity ranked first in

Gandhinagar district and Ahmedabad rural area.^(11, 12,13) In India, over half of men (57%) in the age group of 15-49 years use tobacco in some form or other and over one-tenth (10.9%) of women in this age group also use tobacco. These are the findings of third round of the national family health survey (NFHS-3), which was conducted in 2005-2006.^[14] Scientific evidence has unequivocally established that exposure to tobacco smoke causes death, disease and disability.^[15] 90% of all lung cancer deaths in men and 80% in women are caused by smoking.^[16] In our study analysis also, tobacco related cancers appears in the young adult group (15-34 years) with the proportion of 4.76% and 4% in males and females respectively. The peak of occurrence found in the age group of 35-64 years with 72.49% in males and 68% in females respectively. This study reflects the harmfulness of tobacco hazards and thus provides necessary impetus to initiate and implement a coordinated comprehensive strategy for tobacco control and for reducing cancer burden. High prevalence of tobacco usage among the residents of Patan district highlights the need to incorporate oral cancer screening and tobacco cessation activities effectively. The findings of the study presented in this study gives emphasis to public health initiatives in tobacco related cancer control targeted to prevent smoking and chewing and/or alcohol consumption. In addition to the primary prevention, efforts through health education to reduce tobacco use, organized routine oral cancer screenings are the key elements in effectively preventing and controlling tobacco related cancers.

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