



## Study on prevalence of throat cancer and its association with various risk factors

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### Abstract

Throat cancer refers to cancerous tumor that develops in throat, voice box or tonsils, it may metastasise to other tissues or organs of the body. Throat cancer is the 6<sup>th</sup> most common type of cancer in the world. The purpose of the present study was to investigate the prevalence of the disease in selected cities. A detailed survey was conducted to analyze whether the disease is associated with age factor, Gender and other risk factors. The analysis revealed that males are more affected than females and it is more prevalent in adults of age group above 40 years. Individuals having multiple habits are at greater risk of developing throat cancer. Hence it can be concluded that throat cancer is common in elderly individuals who smoke and drink alcohol. Avoidance of alcohol use and smoking will be a milestone to reduce the incidence of throat cancers and associated mortality.

**Keywords:** prevalence, risk factor, throat cancer

### 1. Introduction

Cancer is a disease of the body cells. Our body regularly produces new cells to repair after injury, for growth and to replace old worn-out cells. Normal cells grow and divide to form new cells as the body needs them. When normal cells grow old or get damaged, they die and new cells take their place. Sometimes, this process goes wrong. New cells form when the body doesn't need them and old or damaged cells don't die as they should. The buildup of extra cells often forms a mass of tissue called a growth or tumor. The tumors can be benign (non-cancerous) or malignant (cancerous). Benign tumors are not as harmful as malignant tumors.

Throat cancer refers to cancerous tumor that develops in throat (pharynx), voice box (larynx) or tonsils. Throat cancer is not a defined medical illness, but a term often used to refer any type of cancer arising from the back of the mouth, upper food pipe and voice box. The most common places for throat cancer to occur are the larynx (voice box) and pharynx (where the upper end of the food pipe and voice box meet), the lower end of which is referred as the hypopharynx.

Like all cancers, clinicians divide throat cancer into groups or stages, based predominantly on the extent of the disease and aggressiveness of the tumor type. These stages range from 1 (small, early tumors that still resemble the tissue they have come from, also referred to as well-differentiated) through to stage IV (larger, more advanced tumors that no longer look like the normal tissue type poorly-differentiated).

Treatment of throat cancer may involve surgery to remove the cancer, radiotherapy, chemotherapy or a combination of all three treatments. Cancers in the throat are generally treated with surgery and may involve radiotherapy with or without chemotherapy after the operation. Cancers of the voice box may be treated by surgery or radiotherapy with or without chemotherapy.

By considering the above factors we conducted a survey for the collection of secondary data of prevalence of throat cancer and its association with various risk factors in different hospitals of Shivamogga, Bangalore and Mysore.

### 2. Methodology

Survey was conducted for the collection of secondary data of throat cancer affected individuals in various hospitals, i.e., Malnad Hospital and Institute Of Oncology, Shivamogga; McGann Hospital, Shivamogga; BGS Global Hospitals, Bangalore; KIDWAI Hospital, Bangalore and Bharath Cancer Hospital, Mysore. After the completion of the survey, a data of 448 throat cancer affected individuals were recorded, that include 322 males and 126 females.

The collected data includes, the detailed history of old patients which were recorded between the months of January and December of the year 2013 and the history of present patients which are still under treatment. Data of a total of 354 old patients and 94 present patients were recorded. The data of old patients was collected through the hospital records and the data of present patients was collected by directly interacting with the patients and sometimes by interacting with guardians and doctors.

The data was analyzed by calculating the percentage distribution of age, gender and other risk factors. Again the distribution of disease in different age groups, risk factors and association with gender was reanalyzed to know whether the disease is associated with particular gender in particular age group and particular risk factor.

### 3. Results

#### 3.1 Gender specific comparison of risk factors in throat cancer affected individuals

Out of 448 throat cancer individuals surveyed, 322 were males

and 126 were females. Among the surveyed patients, the habit of smoking, alcohol consumption and gutkha consumption was more in males compared to females. (Fig.1)

**3.2 Age specific comparison of risk factors in throat cancer affected individuals**

Present survey reveals that, throat cancer was more prevalent in adults of age group above 40 years and less in individuals of age group below 40 years. Among 448 total throat cancer patients surveyed, about 412 individuals are above the age of 40 years and only 36 individuals are aged below 40 years. The number of smokers, alcohol consumers and gutkha consumers are 358, 301 and 185 respectively. Among these maximum patients were between the age group of 40 to 70 years. (Fig.2)

**3.3 Gender specific comparison of risk factors in individuals having two habits**

The survey showed that, habit of smoking along with the habit of alcohol consumption was seen in more number of males than females. In females, individuals with the habit of both alcohol and gutkha consumption were more in numbers. Hence, smoking and alcohol as mixed habits may have major effects to the risk of developing throat cancer in males whereas alcohol and gutkha as mixed habits may have their effects in females. (Fig.3)

Among 322 male individuals and 126 female individuals surveyed 61 male and 19 female individuals had all the three habits of smoking, alcohol and gutkha consumption.

**3.4 Age specific comparison of risk factors in individuals having two habits**

In the present data, habit of smoking and alcohol consumption, smoking and gutkha consumption, alcohol and gutkha consumption as mixed habits were seen in 191, 113 and 63 individuals respectively, all these individuals are between the age group of 40 to 70 years. These three types of mixed habits are least (approximately 15%) below the age group of 40 years. (Fig.4)

Among 80 individuals having all the three habits, more number of patients were found to be in the age group of 40 to 70 years and least below the age group of 40 years. Hence, the age group of 40 to 70 years along with all the three habits may be considered as the major risk factor.

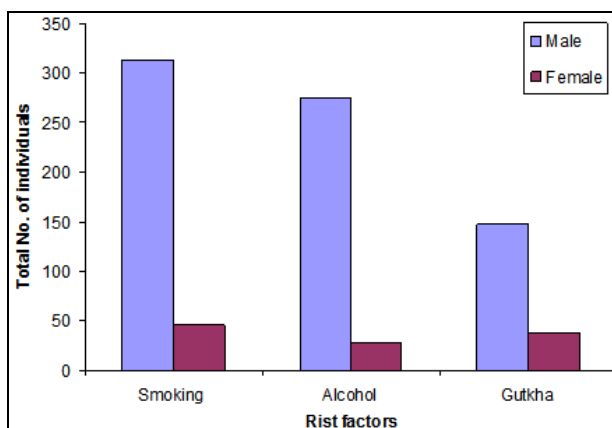


Fig 1: Gender specific comparison of risk factors in throat cancer affected individuals

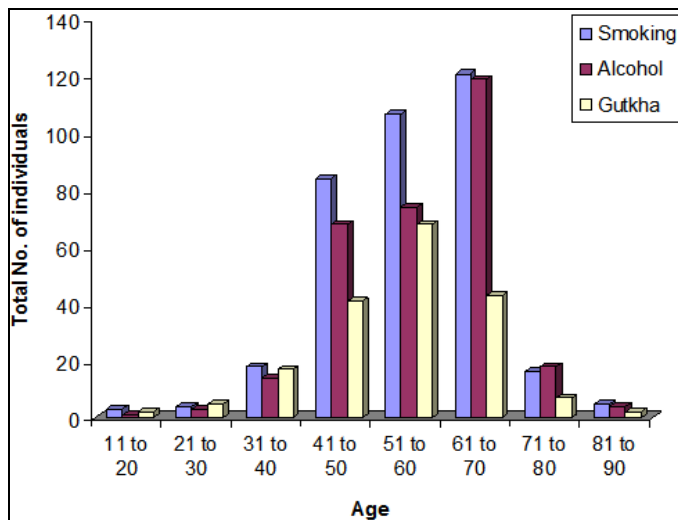


Fig 2: Age specific comparison of risk factors in throat cancer affected individuals

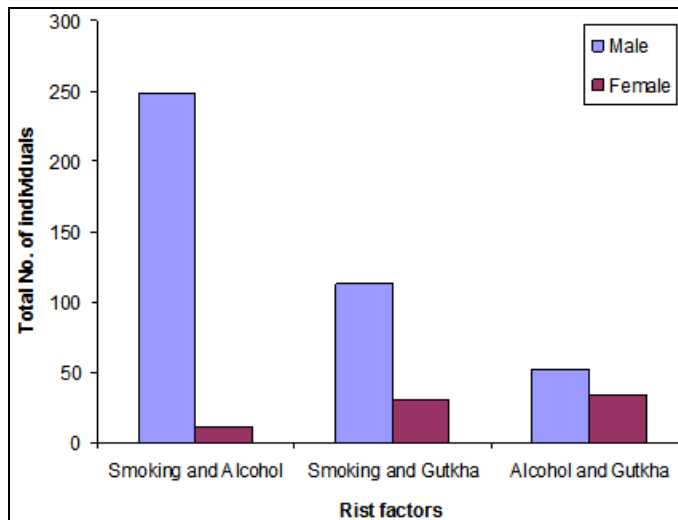


Fig 3: Gender specific comparison of risk factors in individuals having two habits

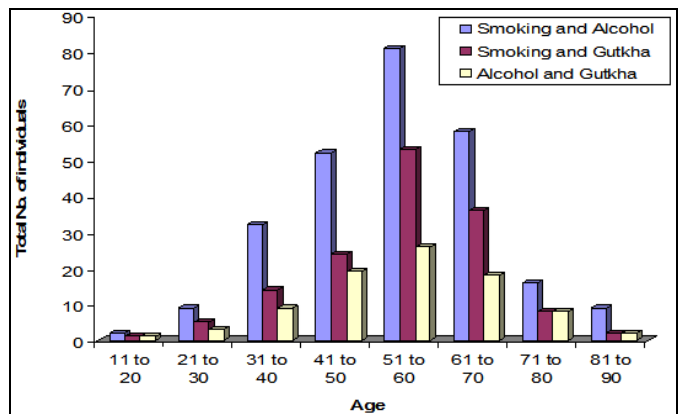


Fig 4: Age specific comparison of risk factors in individuals having two habits

**4. Discussion**

Among 448 throat cancer affected individuals surveyed, 132 patients were 51 to 60 years of age, 133 patients were 61 to 70

years of age, which is higher than other age groups. The age group between 11 to 20, 21 to 30 and 31 to 40 had lesser number than other age groups. The results of the survey revealed that throat cancer is most common among individuals above 40 years of age and is low among the individuals below the age of 40 years. Tobacco is the most important identified case of cancer and is responsible for about 40 to 50 % of cancers in men and about 20% in women (Cherian Varghese). In gender specific comparison our survey also revealed that male individuals were most affected than female individuals i.e., 322 males and 126 females.

In the present study, among the affected individuals 358 were smokers, 301 were alcohol consumers and 185 were gutkha consumers. According to the present data the maximum number of smokers, alcohol consumers and gutkha consumers are of the age group of 40 to 70 years. Hence, this age group may be more susceptible to throat cancer and survey has shown the same. The number of smokers, alcohol consumers and gutkha consumers were found higher in males than females. Hence, it may be inferred that males are at the higher risk than females of throat cancer. A UK study involving over 7,700 men concluded that pipe and cigar smoking, whether primary or secondary, carried a major risk of smoking-related ill health. The research involved men aged 40-59 years old. A study of 15,000 male pipe smokers conducted by the American cancer Society found that pipe smoking carried a similar risk of cancer and other disease as cigar smoking. Smoking is the single biggest avoidable risk factor for cancer. It is estimated to be responsible for nearly one fifth of all new cancer cases about 60,000 a year and causes more than one quarter (28%) of all cancer deaths in the UK. Globally, one in five cancer deaths (22%) are caused by tobacco.

The effects of tobacco use, heavy alcohol consumption explain over 90 percent of cases of neck cancer (Johnson N, 2001) [13]. Traditional risk factors for throat cancer include tobacco use and alcohol consumption (Feriyl Bhaijee, MD). Alcohol and tobacco use can increase the risk of cancer of the oral cavity and throat (pharynx), and their combined use has a multiplicative effect on risk (Claudio Pelucchi, Sc.D.; *et al.* 2006) [5]. Our survey also revealed that individuals with mixed habits of smoking and alcohol consumption are more in number than that of smoking and gutkha consumption, alcohol and gutkha consumption. Hence, smoking and alcohol consumption together may be considered as major risk factors for throat cancer. Further, the age group of 40 to 70 years along with smoking and alcohol consumption as mixed habits may be considered as major risk factor where it may affect more males than females. Many epidemiological studies conducted over the last three decades in the America, Europe and Asia have provided strong evidence of an association between alcohol and tobacco use (both separately and in combination) and an increased risk of oral and pharyngeal tumors (Blot *et al.*, 1988; Franceschi *et al.*, 1990; Zheng *et al.*, 1990, 2004) [3, 9, 21].

All the three habits such as smoking, alcohol consumption and gutkha consumption in the age group of 40 to 70 years are effective in inducing throat cancer than other risk factors. The risk factors most frequently associated with head and neck cancers include smoking, alcohol consumption, HPV infection (especially for oropharyngeal cancers), and EBV infection (for

nasopharyngeal cancers).

Finally the present study has revealed the possible association of age and gender with throat cancer. This data presents further evidence for the association of smoking, alcohol consumption and gutkha consumption as risk factors to the throat cancer.

## 5. Conclusion

Throat cancer is common in elderly individuals and it is commonest in people who smoke and drink alcohol. Avoidance of alcohol consumption and smoking will be a milestone to reduce the incidence of throat cancer and associated mortality. Hence, from the survey it may be concluded that smoking and alcohol consumption are the main risk factors for throat cancer along with gutkha consumption. Our survey also shows that the individuals who had the mixed habit (smoking and alcohol consumption) are more affected and they belong to an age group of 40 to 70 years. Hence this age group may be more susceptible to throat cancer.

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