

# ORAL CANCER CAUSING HABITS AND RELATED ORAL LESIONS –A STUDY AMONG PEOPLE OF NORTHERN PART OF WEST BENGAL, WITH DIFFERENT OCCUPATION AND SOCIOECONOMIC BACKGROUND

Dr. Tathagata Bhattacharjee\*, Dr. Somnath Gangopadhyay\*\*

## ABSTRACT

**Introduction :** Oral Cancer is quite common among deadly cancers over the world. In India, the habits which may be related to oral cancer, are the habit of tobacco use (either in smoked or smokeless), areca nut use and alcohol misuse.

**Materials and Methods :** In the present study we have framed a questionnaire to access the knowledge regarding the prevalence of oral cancer causing habits. The answers were compared among different groups which were created based on socio-demographic parameters. We have also examined oral cavity of people to know the prevalence of different oral lesions due to various deleterious habits.

**Results :** We found that, 54.39% people had some kind of oral cancer causing habits. In this part of Bengal, 17.77% people had smoking habit, 41.75 % had chewing habit and 6.42% people had habit of alcohol consumption. Oral Sub mucous fibrosis was the most prevalent oral lesions.

**Conclusions :** This study aims to help policy makers and researchers to identify their target population and to campaign against oral cancer Cancer and habits related to it.

## KEY WORDS

Alcohol, North Bengal, Oral Cancer, Tobacco

## ABOUT THE AUTHORS

\* Assistant Professor

Department of Oral Pathology and Microbiology  
North Bengal Dental College & Hospital, Government of West Bengal, Darjeeling, West Bengal, India

\*\*Professor & Ex Head of Department

Department of Physiology, University of Calcutta  
Kolkata, West Bengal, India

## CORRESPONDING AUTHOR

**Dr. Tathagata Bhattacharjee**

M.D.S (Oral Pathology and Microbiology)

Flat-2E, Mohan Tower, 28B Chaulpatty Road, Belegata, Kolkata-10

Mobile-9735601797 e-mail ID: [drtatha.dent@gmail.com](mailto:drtatha.dent@gmail.com)

## INTRODUCTION

Oral Cancer is quite common among deadly cancers over the world. In India, the habits; which may be related to oral cancer, are the habit of tobacco use (either in smoked or smokeless), areca nut use and alcohol misuse. The death caused by oral cancer in India is mainly because of late presentation of patients to treatment givers.<sup>1</sup>

Majority of oral cancers develop from precancerous lesions and conditions<sup>2</sup>. At present, they are termed, 'Potentially malignant disorder' as all of them do not always turn into malignancy.

In various studies, socio demographic factors were noticed to be associated with cancerous and precancerous lesions of oral cavity and awareness related to it.

Various studies have shown that, tobacco smoking as well as oral cancer both varies with occupation. Tendency of smoking is more in people with agriculture and laborer as their occupation<sup>3</sup>. Industry workers work throughout the weeks in rotating shifts, hence a disruption of regular body circadian rhythm activity takes place; the physical and mental tedious work, drive workers to use tobacco products. Various studies have also shown that low socioeconomic status is significantly associated with heavy tobacco use as well as oral cancer in high and low income countries across the world.

The prevalence and pattern of use of oral cancer causing different habit products (tobacco in any form, areca nut as well as alcohol) is different based on geographical and socio-cultural variations.

Very little is known about the pattern of use of different oral cancer causing habit products in Bengali population. There is very less data when it comes to the population of North Bengal.

Therefore, at first there is an urgent need to know the pattern of oral cancer causing different habit products as well as their habit related oral lesions to select the target population of North Bengal to conduct different counselling procedures as well as to frame different policies.

## MAERIALS AND METHODS

This is a cross-sectional study was conducted to identify cancer causing habits and related oral mucosal changes among people of North Bengal. The study was conducted in different private clinics and oral health screening camps around different parts of North Bengal. Ethical approval was obtained from Institutional Ethical Committee, Department of Physiology, University of Calcutta, Kolkata.

Patients above 15 years who had no systemic disease and willing to participate in this study were included.

Subjects, who had known systemic diseases and those who did not gave consent, were excluded from the study.

For people with armed force occupation, who were born and bought up in a particular geographic location of Northern part of West Bengal and currently working in the same geographic area without transfer were only included in the study.

Persons with transferrable job in different geographical location of west Bengal were excluded from study.

Persons who had more than one occupation were excluded from the study.

People who migrated from other geographical location of West Bengal, India or neighboring country were excluded from the study

Staff for the study chiefly consisted of medical social workers and oral pathologists.

### Study Procedure

Medical social workers were trained for the duration of 3 months to take data from the study sample.

First, the purpose of the study was explained to the study participants and informed consent was obtained from them. A face-to-face interview was conducted and their oral cavity was clinically examined using mouth mirror and explorer under daylight to rule out if any cancer causing habit-related oral lesion was present. All the oral lesions were clinically diagnosed as per the WHO criteria and color atlas of oral pathology.

Information regarding demographic characteristics was collected using a questionnaire formatted both in English and local language Bengali. Along with these, information regarding their cancer causing habits was assessed using the WHO steps questionnaire.<sup>4</sup> Study population was divided into 6 age groups. These age groups were 15-24, 25-34, 35-44, 45-54, 55-64 and more than 64 years of age.

The questionnaire collected information regarding the person's place of residence, the number of individuals in the family and total monthly income

of the family from all sources were used for determining the Socio Economic Status of the individual.

Modified B.G.Prasad's SES<sup>5</sup> scale was used to determine socioeconomic status of our study population.

BG Prasad's SES Scale is based on Per capita monthly income.<sup>6,7</sup>

Per capita monthly income = total monthly income of the family / total members of family. . Based on this BG Prasad's SES Scale, study population was divided into 5 socioeconomic classes; Upper class, Upper middle class, Middle class, Lower middle class and Lower class.

Distribution of occupation in the study population was categorized as per the International Standard Classification of Occupations (ISCO)-08 structures.<sup>8</sup>

The ISCO-08 divides jobs into ten major groups: (Group-1) managers, (Group-2) professionals, (Group-3) technicians and associate professionals, (Group-4) clerical support workers, (Group-5) service and sales workers, (Group-6) skilled agricultural, forestry, and fishery workers, (Group-7) craft and related trade workers, (Group-8) plant and machine operators and assemblers, (Group-9) elementary occupations, and (Group-0) armed forces occupations.

Each major group is further organized into sub major, minor, and unit groups.

Housewives, students, retired persons and unemployed people were categorized separately due to difference in nature of their working pattern.

Based on questionnaire collected information study population was divided into 6 educational groups. These grouping were based on maximum educational qualification of individual included in this study.

These categories were uneducated people, people with primary education, and people with secondary education, People who passed H.S. examination, graduate people and post graduate people.

The study population further also categorized based on gender (Male and Female) and place of residence (Rural and Urban).

### STATISTICAL ANALYSIS

For statistical analysis, data were entered into a Microsoft Excel spreadsheet and then analyzed by SPSS 24.0. and Graph Pad Prism version 5. Unpaired proportions were compared by Chi-square test or Fischer's exact test, as appropriate. P value  $\leq 0.05$  was considered statistically significant.

## RESULTS

Total 467 participants participated in our study. Among them 245(52.5%) were male and 222(47.5%) were female. Among study population 221(47.3%) were from rural area and 246(52.7%) were from urban area. Classification of participants based on socio demographic and socio economic condition is described in Table-1.

In our study, among participants; 254(54.39%) people had some kind of oral cancer causing habits. In this part of Bengal, 17.77% people had smoking habit, 41.75 % had chewing habit and 6.42% people had drinking habit.

Gender distribution of different habits and percentage distribution of different cancer causing

habits based on different socioeconomic and socio-demographic parameters are described in **Table-2**

Among people with different habits, 26.95% had smoking habits, 63.31% had chewing habits and 9.74% had alcohol consumption habits.

Among male habit users 19.68% were smokers, 74.01% were tobacco chewers and 6.29% consumed alcohol. Among female habit users 32.04% were smokers, 55.80% were tobacco chewers and 12.15% were drinkers.

Different smoking products used in North Bengal were Bidi, Cigarette, Bidi and cigarette both as well as other smoking products. Among these products only bidi user were highest in numbers (54.2%). Detailed usage of different smoking products are described in **Table-3**

**Table-1**  
**Socio demographic and socio economic distribution of participants**

| Variables      | Frequency/Percentage | Occupation        | Education                 |
|----------------|----------------------|-------------------|---------------------------|
| <b>Age</b>     |                      |                   |                           |
| 15-24          | 70                   | <b>Group-0</b>    | <b>Graduate</b>           |
| Col %          | 15.0                 | Col %             | Col %                     |
| 25-34          | 124                  | <b>Group-1</b>    | <b>H.S</b>                |
| Col %          | 26.6                 | Col %             | Col %                     |
| 35-44          | 116                  | <b>Group-2</b>    | <b>Post Graduate</b>      |
| Col %          | 24.8                 | Col %             | Col %                     |
| 45-54          | 90                   | <b>Group-3</b>    | <b>Primary</b>            |
| Col %          | 19.3                 | Col %             | Col %                     |
| 55-64          | 45                   | <b>Group-4</b>    | <b>Secondary</b>          |
| Col %          | 9.6                  | Col %             | Col %                     |
| >64            | 22                   | <b>Group-5</b>    | <b>Uneducated</b>         |
| Col %          | 4.7                  | Col %             | Col %                     |
| <b>TOTAL</b>   | 467                  | <b>Group-6</b>    | <b>TOTAL</b>              |
| Col %          | 100.0                | Col %             | Col %                     |
| <b>SES</b>     |                      | <b>Group-7</b>    | <b>Place of residence</b> |
| <b>CLASS-1</b> | 89                   | Col %             | <b>Rural</b>              |
| Col %          | 19.1                 | <b>Group-8</b>    | Col %                     |
| <b>CLASS-2</b> | 181                  | Col %             | <b>Urban</b>              |
| Col %          | 38.8                 | <b>Group-9</b>    | Col %                     |
| <b>CLASS-3</b> | 107                  | Col %             | <b>TOTAL</b>              |
| Col %          | 22.9                 | <b>House wife</b> | Col %                     |
| <b>CLASS-4</b> | 64                   | Col %             | <b>467</b>                |
| Col %          | 13.7                 | <b>Retired</b>    | <b>100.0</b>              |
| <b>CLASS-5</b> | 26                   | Col %             |                           |
| Col %          | 5.6                  | <b>Student</b>    |                           |
| <b>TOTAL</b>   | 467                  | Col %             |                           |
| Col %          | 100.0                | <b>Unemployed</b> |                           |
|                |                      | Col %             |                           |
|                |                      | <b>TOTAL</b>      |                           |
|                |                      | Col %             |                           |
|                |                      | <b>467</b>        |                           |
|                |                      | <b>100.0</b>      |                           |

**Table-2**

**Different Cancer causing habits based on different socioeconomic and sociodemographic parameters.**

| VARIABLES | SMOKING | CHEWING | DRINKING | Occupation |       |       |       | Education          |       |       |       |
|-----------|---------|---------|----------|------------|-------|-------|-------|--------------------|-------|-------|-------|
| Gender    |         |         |          | Group-0    | 0     | 3     | 3     | Graduate           | 18    | 34    | 8     |
| Male      | 25      | 94      | 8        | Col %      | 0.0   | 1.5   | 10.0  | Col %              | 21.7  | 17.4  | 26.7  |
| Col %     | 30.1    | 48.2    | 26.7     | Group-1    | 00    | 00    | 00    | H.S                | 11    | 33    | 4     |
| Row%      | 19.68   | 74.01   | 6.29     | Col %      |       |       |       | Col %              | 13.3  | 16.9  | 13.3  |
| Female    | 58      | 101     | 22       | Group-2    | 1     | 11    | 3     | Post Graduate      | 0     | 4     | 0     |
| Col %     | 69.9    | 51.8    | 73.3     | Col %      | 1.2   | 5.6   | 10.0  | Col %              | 0.0   | 2.1   | 0.0   |
| Row%      | 32.04   | 55.80   | 12.15    | Group-3    | 7     | 17    | 5     | Primary            | 15    | 32    | 4     |
| Total     | 83      | 195     | 30       | Col %      | 8.4   | 8.7   | 16.7  | Col %              | 18.1  | 16.4  | 13.3  |
| Col %     | 100.0   | 100.0   | 100.0    | Group-4    | 7     | 6     | 2     | Secondary          | 30    | 63    | 9     |
| Row%      | 26.95   | 63.31   | 9.74     | Col %      | 8.4   | 3.1   | 6.7   | Col %              | 36.1  | 32.3  | 30.0  |
| Age       |         |         |          | Group-5    | 7     | 14    | 4     | Uneducated         | 9     | 29    | 5     |
| 15-24     | 6       | 22      | 1        | Col %      | 8.4   | 7.2   | 13.3  | Col %              | 10.8  | 14.9  | 16.7  |
| Col %     | 7.2     | 11.3    | 3.3      | Group-6    | 6     | 17    | 2     | TOTAL              | 83    | 195   | 30    |
| 25-34     | 28      | 46      | 7        | Col %      | 7.2   | 8.7   | 6.7   | Col %              | 100.0 | 100.0 | 100.0 |
| Col %     | 33.7    | 23.6    | 23.3     | Group-7    | 5     | 4     | 1     | Place of residence |       |       |       |
| 35-44     | 18      | 55      | 10       | Col %      | 6.0   | 2.1   | 3.3   | Rural              | 33    | 87    | 18    |
| Col %     | 21.7    | 28.2    | 33.3     | Group-8    | 0     | 8     | 1     | Col %              | 39.8  | 44.6  | 60.0  |
| 45-54     | 12      | 43      | 7        | Col %      | 0.0   | 4.1   | 3.3   | Urban              | 50    | 108   | 12    |
| Col %     | 14.5    | 22.1    | 23.3     | Group-9    | 32    | 34    | 4     | Col %              | 60.2  | 55.4  | 40.0  |
| 55-64     | 13      | 19      | 1        | Col %      | 38.6  | 17.4  | 13.3  | TOTAL              | 83    | 195   | 30    |
| Col %     | 15.7    | 9.7     | 3.3      | House wife | 00    | 57    | 00    | Col %              | 100.0 | 100.0 | 100.0 |
| >64       | 6       | 10      | 4        | Retired    | 4     | 4     | 0     | Place of residence |       |       |       |
| Col %     | 7.2     | 5.1     | 13.3     | Col %      | 4.8   | 2.1   | 0.0   | Rural              | 33    | 87    | 18    |
| TOTAL     | 83      | 195     | 30       | Student    | 11    | 16    | 4     | Col %              | 39.8  | 44.6  | 60.0  |
| Col %     | 100.0   | 100.0   | 100.0    | Col %      | 13.3  | 8.2   | 13.3  | Urban              | 50    | 108   | 12    |
| SES       |         |         |          | Unemployed | 3     | 4     | 1     | Col %              | 60.2  | 55.4  | 40.0  |
| CLASS-1   | 20      | 36      | 7        | Col %      | 3.6   | 2.1   | 3.3   | TOTAL              | 83    | 195   | 30    |
| Col %     | 24.1    | 18.5    | 23.3     | TOTAL      | 83    | 195   | 30    | Col %              | 100.0 | 100.0 | 100.0 |
| CLASS-2   | 31      | 74      | 13       | House wife | 00    | 57    | 00    | Place of residence |       |       |       |
| Col %     | 37.3    | 37.9    | 43.3     | Retired    | 4     | 4     | 0     | Rural              | 33    | 87    | 18    |
| CLASS-3   | 11      | 41      | 5        | Col %      | 4.8   | 2.1   | 0.0   | Col %              | 39.8  | 44.6  | 60.0  |
| Col %     | 13.3    | 21.0    | 16.7     | Student    | 11    | 16    | 4     | Urban              | 50    | 108   | 12    |
| CLASS-4   | 17      | 28      | 5        | Col %      | 13.3  | 8.2   | 13.3  | Col %              | 60.2  | 55.4  | 40.0  |
| Col %     | 20.5    | 14.4    | 16.7     | Unemployed | 3     | 4     | 1     | TOTAL              | 83    | 195   | 30    |
| CLASS-5   | 4       | 16      | 0        | Col %      | 3.6   | 2.1   | 3.3   | Col %              | 100.0 | 100.0 | 100.0 |
| Col %     | 4.8     | 8.2     | 0.0      | TOTAL      | 83    | 195   | 30    | Place of residence |       |       |       |
| TOTAL     | 83      | 195     | 30       | House wife | 00    | 57    | 00    | Rural              | 33    | 87    | 18    |
| Col %     | 100.0   | 100.0   | 100.0    | Retired    | 4     | 4     | 0     | Col %              | 39.8  | 44.6  | 60.0  |
|           |         |         |          | Col %      | 4.8   | 2.1   | 0.0   | Urban              | 50    | 108   | 12    |
|           |         |         |          | Student    | 11    | 16    | 4     | Col %              | 60.2  | 55.4  | 40.0  |
|           |         |         |          | Col %      | 13.3  | 8.2   | 13.3  | TOTAL              | 83    | 195   | 30    |
|           |         |         |          | Unemployed | 3     | 4     | 1     | Col %              | 100.0 | 100.0 | 100.0 |
|           |         |         |          | Col %      | 3.6   | 2.1   | 3.3   | Place of residence |       |       |       |
|           |         |         |          | TOTAL      | 83    | 195   | 30    | Rural              | 33    | 87    | 18    |
|           |         |         |          | Col %      | 100.0 | 100.0 | 100.0 | Col %              | 39.8  | 44.6  | 60.0  |
|           |         |         |          | House wife | 00    | 57    | 00    | Urban              | 50    | 108   | 12    |
|           |         |         |          | Retired    | 4     | 4     | 0     | Col %              | 60.2  | 55.4  | 40.0  |
|           |         |         |          | Col %      | 4.8   | 2.1   | 0.0   | TOTAL              | 83    | 195   | 30    |
|           |         |         |          | Student    | 11    | 16    | 4     | Col %              | 100.0 | 100.0 | 100.0 |
|           |         |         |          | Col %      | 13.3  | 8.2   | 13.3  | Place of residence |       |       |       |
|           |         |         |          | Unemployed | 3     | 4     | 1     | Rural              | 33    | 87    | 18    |
|           |         |         |          | Col %      | 3.6   | 2.1   | 3.3   | Col %              | 39.8  | 44.6  | 60.0  |
|           |         |         |          | TOTAL      | 83    | 195   | 30    | Urban              | 50    | 108   | 12    |
|           |         |         |          | Col %      | 100.0 | 100.0 | 100.0 | Col %              | 60.2  | 55.4  | 40.0  |
|           |         |         |          | House wife | 00    | 57    | 00    | TOTAL              | 83    | 195   | 30    |
|           |         |         |          | Retired    | 4     | 4     | 0     | Col %              | 100.0 | 100.0 | 100.0 |
|           |         |         |          | Col %      | 4.8   | 2.1   | 0.0   | Place of residence |       |       |       |
|           |         |         |          | Student    | 11    | 16    | 4     | Rural              | 33    | 87    | 18    |
|           |         |         |          | Col %      | 13.3  | 8.2   | 13.3  | Col %              | 39.8  | 44.6  | 60.0  |
|           |         |         |          | Unemployed | 3     | 4     | 1     | Urban              | 50    | 108   | 12    |
|           |         |         |          | Col %      | 3.6   | 2.1   | 3.3   | Col %              | 60.2  | 55.4  | 40.0  |
|           |         |         |          | TOTAL      | 83    | 195   | 30    | TOTAL              | 83    | 195   | 30    |
|           |         |         |          | Col %      | 100.0 | 100.0 | 100.0 | Col %              | 100.0 | 100.0 | 100.0 |

In North Bengal, most of the smokers (37.3%) had their habits for more than 15 years. Smoking duration of people of North Bengal is described in **Table-4**.

In North Bengal, most of the smokers(56.6%) smoked 5-10 times\day. Smoking frequency of people of North Bengal is described in **Table-5**.

People with tobacco chewing habits of North Bengal used Packet areca nut, Dukta, Gutkha, Khaini, Pan with areca nut, different mixed products and other products. Among these products (39.5%), pan with areca nut (39.5%) were used most. Detailed descriptions of different Chewing products are described in **Figure-1**.

In North Bengal, most of the people had their chewing habits for 5-10 years (39.0%). Detailed description of Duration of tobacco chewing habit among people residing in North Bengal is described in **Table-6**.

In North Bengal, most of the people chewed

tobacco 1-5 times/day (69.2%). Detail description of chewing frequency of people residing in North Bengal is given in **Table-7**.

Alcohol consumption habit was also predominant in North Bengal. Most of the alcohol consumers had the habit for 5-10 years (56.7%). Detailed description of duration of alcohol consumption habit among people of North Bengal is described in **Table-8**.

In our study, 13.6% people had tobacco related oral lesions. Among males Oral Submucous Fibrosis was highest among all oral lesions. Among females Oral Lichen Planus and Oral Submucous fibrosis was most common oral lesions other than tobacco related oral lesions. In our study, most of the tobacco related oral lesions were present in males residing in North Bengal including oral squamous cell carcinoma. On the oter hand oral leukoplakia and oral lichen planus were more predominant among females of North Bengal. Detailed description of Oral Changes among people of North Bengal are given in **Table-9**.

**Table-3**  
Usage of different smoking products

| SMOKING PRODUCT |      |                  |           |       |       |
|-----------------|------|------------------|-----------|-------|-------|
| Part of Bengal  | Bidi | Bidi + cigarette | Cigarette | Other | TOTAL |
| North Bengal    | 45   | 5                | 30        | 3     | 83    |
| Row %           | 54.2 | 6.0              | 36.1      | 3.6   | 100.0 |

**Table-4**  
Smoking duration of people of North Bengal

| SMOKING DURATION |          |            |             |           |       |
|------------------|----------|------------|-------------|-----------|-------|
| Part of Bengal   | <5 years | 5-10 years | 10-15 years | >15 years | TOTAL |
| North Bengal     | 7        | 29         | 16          | 31        | 83    |
| Row %            | 8.4      | 34.9       | 19.3        | 37.3      | 100.0 |

**Table-5**  
Smoking frequency of people of North Bengal

| SMOKING FREQUENCY |      |      |       |      |       |
|-------------------|------|------|-------|------|-------|
| Part of Bengal    | 1-5  | 5-10 | 10-15 | >15  | TOTAL |
| North Bengal      | 19   | 47   | 8     | 9    | 83    |
| Row %             | 22.9 | 56.6 | 9.6   | 10.8 | 100.0 |

**Table-6**  
Chewing duration of people residing in North Bengal

| CHEWING DURATION |          |            |             |           |       |
|------------------|----------|------------|-------------|-----------|-------|
| Part of Bengal   | <5 years | 5-10 years | 10-15 years | >15 years | TOTAL |
| North Bengal     | 46       | 76         | 24          | 49        | 195   |
| Row %            | 23.6     | 39.0       | 12.3        | 25.1      | 100.0 |

**Table-7**  
Chewing duration of people residing in North Bengal

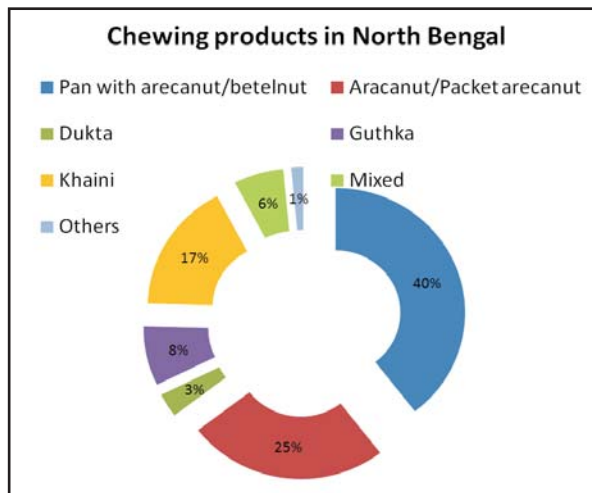
| CHEWING FREQUENCY GROUP |      |      |       |     |       |
|-------------------------|------|------|-------|-----|-------|
| Part of Bengal          | 1-5  | 5-10 | 10-15 | >15 | TOTAL |
| North Bengal            | 135  | 54   | 3     | 3   | 195   |
| Row %                   | 69.2 | 27.7 | 1.5   | 1.5 | 100.0 |

**Table-8**  
Duration of alcohol consumption habit among people of North Bengal

| ALCOHOL CONSUMSION DURATION GROUP |          |            |             |           |       |
|-----------------------------------|----------|------------|-------------|-----------|-------|
| Part of Bengal                    | <5 years | 5-10 years | 10-15 years | >15 years | TOTAL |
| North Bengal                      | 3        | 17         | 3           | 7         | 30    |
| Row %                             | 10.0     | 56.7       | 10.0        | 23.3      | 100.0 |

**Table-9**  
Oral Changes among people of North Bengal

| <b>Oral Changes among people of North Bengal</b> |              |               |                   |
|--|--------------|---------------|-------------------|
| <b>oral changes</b>                              | <b>Male</b>  | <b>Female</b> | <b>Total</b>      |
| <b>Absent</b><br>Col %                           | 207<br>84.5  | 199<br>89.6   | 406<br>86.9       |
| <b>erythroplakia</b><br>Col %                    | 3<br>1.2     | 0<br>0.0      | 3<br>0.6          |
| <b>leukoplakia</b><br>Col %                      | 2<br>0.8     | 3<br>1.4      | 5<br>1.1          |
| <b>lichen planus</b><br>Col %                    | 6<br>2.4     | 7<br>3.2      | 13<br>2.8         |
| <b>OSMF</b><br>Row %<br>Col %                    | 11<br>4.5    | 7<br>3.2      | 18<br>81.8<br>3.9 |
| <b>sc</b><br>Col %                               | 5<br>2.0     | 2<br>0.9      | 7<br>1.5          |
| <b>smokers melanosis</b><br>Col %                | 4<br>1.6     | 1<br>0.5      | 5<br>1.1          |
| <b>smokers palate</b><br>Col %                   | 1<br>0.4     | 0<br>0.0      | 1<br>0.2          |
| <b>Tobacco induced keratosis</b><br>Col %        | 6<br>2.4     | 3<br>1.4      | 9<br>1.9          |
| <b>TOTAL</b><br>Row %<br>Col %                   | 245<br>100.0 | 222<br>100.0  | 467<br>100.0      |



**Figure: 1**  
**Chewing Products**  
**Of North Bengal**

## DISCUSSION

GATS-2, West Bengal, India, 2016–2017<sup>9</sup> reported that 16.7% of adults used smoked tobacco and 20.1% of adults used smokeless tobacco.

This data do not matches with our study, where it

was found that, in Northern part of Bengal; smoking habit was 17.77% and chewing habit was 41.75%.

Among chewers 51.8% were females. Increased prevalence of chewing habit could be due to inclusion of areca-nut product in our study along with tobacco.

Increased prevalence of chewing habits among females of this part of Bengal could be due to socio-cultural acceptance of tobacco and areca nut chewing

among females in this area.

GATS-2 India also described about non tobacco chewing products. As per the report, in India, overall 4.8% people used pan masala without tobacco, 8.7% used betel quid without tobacco and 8.0% people used arecanut.<sup>9</sup> In our study, we found that among people with tobacco chewing habits in North Bengal, 40% people used pan with arecanut, 25% people used packed areca nut and 17% people used Khaini. Other products users were very less in numbers.

In contrast to our report Mondal et al.<sup>10</sup> in 2012 did a study on tobacco use pattern and awareness about tobacco hazards in a rural community of West Bengal, and found that among habit product users, majority (81.7%) were only smokers, 6.5% were smokeless tobacco chewers and 11.8% were dual user.

NFHS-5, West Bengal<sup>11</sup>, reported that the prevalence of drinking alcohol was 18.1% in males and was 1.1% in females. In urban areas, the percentage of drinking alcohol among males was more, 18.9%.

In contrast to this report, our study showed that In Northern part of Bengal, 6.42% people had drinking habit; among them, female drinkers were more.

GATS, West Bengal, India, 2009-2010<sup>12</sup> reported that 21.3% of adult in this state were tobacco smokers. 39.5% of were male and 1.9% were females. 10.3% adult used cigarette and 15.7% used Bidi among whole population; 21.9% of adult used smokeless tobacco. As per the report, in West Bengal 25.8% males and 17.8% female used smokeless tobacco.

Among smokers, 30,1% were male and 69.9% were female in our study.

In North Bengal highest percentage of smokers belonged to 25-34 age group, most of them completed only secondary education, belong to Class-II socioeconomic standard, resided in urban area and most of them were from Group-9 occupation (Elementary workers).

The maximum tobacco chewers were from age group 35-44 in our study. People with Class-2 socioeconomic status and with secondary education had more tobacco chewing habit.

Tobacco chewing habit was more in people from urban area. Housewives as well as Group-9 occupation (Elementary occupation) had the most tobacco chewing habits.

In this study it was found that most commonly used chewing product was Pan with Arecanut followed by arecanut/packet arecanut and Khaini. Females predominantly used pan with arecanut and men used arecanut/packet arecanut and khaini.

In 2006, Saraswathi et al.<sup>13</sup> studied the prevalence of oral lesion in relation to habits in Chennai and found that 4.1% of the study population had soft-tissue lesions. Among these lesions, the prevalence of

leukoplakia, oral sub- mucous fibrosis, and oral lichen planus was 0.59%, 0.55%, and 0.15%, respectively.

In this present study it was found that Oral Submucous Fibrosis was the most common lesion, followed by oral lichen planus.

Most of the cancerous and precancerous lesions (Oral SCC, Erythroplakia, OSMF) were more common among males of North Bengal except oral leukoplakia & oral lichen planus. These lesions were common among females of North Bengal.

It was found that; oral precancerous condition, oral submucous fibrosis was related to chewing of betelnut product such as gutkha, pan with betelnut as well as packet arecanut product.

In contrast to our study, Meerjady S Flora et al in 2012 studied betel quid chewing and its risk factors in Bangladeshi people with age group more than 40 years, with low socio-economic status, rural residents, farmers and the illiterate developed more chewing habits.<sup>14</sup>

In our study, no significant findings were noticed with alcohol consumption habits, except the gender distribution.

In contrast to our study, Gintarė Petronytė et al in 2007 opined that uncontrolled availability of alcoholic beverages; miscellaneous family problems and peer pressure were main risk factors for developing drinking habits.<sup>15</sup>

## CONCLUSION

This study showed us the percentage and pattern of use of oral cancer causing different habit products (tobacco in any form, areca nut as well as alcohol) in Northern part of West Bengal, which is a different geographical area. Our study also pointed out the percentage of different lesions of oral mucosa occurring among people of this area due the use of cancer-causing habit products.

In this study, information was collected using questionnaire and oral cavity examination; hence, chances of information bias exist.

This study will help policy makers and researchers to identify their target population to do campaigning against oral cancer and habits related to it in Northern part of West Bengal; based on specific socio-demographic factors.

## REFERENCES

1. Sadeq Ali Al-Maweri, Bassel Tarakji, Anas B Alsahani et al, Oral Cancer Awareness of the General Public in Saudi Arabia, Asian Pac J Cancer Prev, 16 (8), 3377-3381.
2. D Sujatha, Pragati B Hebbar, Anuradha Pai,

- Prevalence and Correlation of Oral Lesions among Tobacco Smokers, Tobacco Chewers, Areca Nut and Alcohol Users, *Asian Pacific J Cancer Prev*, 13, 1633-1637.
3. Hemant J Pawar, K.K.Singh, G.B.Dhumale, Prevalence and Assessment of various risk factors among Oral Cancer Cases in a rural area of Maharashtra State, India-An Epidemiological study, *JKIMSU*, Vol.4, No.3, July-September, 2015.
  4. WHO STEPS Instrument, (Core and Expanded), The WHO STEP wise approach to non communicable disease risk factor surveillance (STEPS), World Health Organization, 20 Avenue Appia, 1211 Geneva 27, Switzerland, [Obtained from - [www.who.int/chp/steps](http://www.who.int/chp/steps)].
  5. Guru Raj M.S, Shilpa S, Maheswaran R. Revised socio-economic status scale for urban and rural India – Revision for 2015, *Socioeconomica – The Scientific Journal for Theory and Practice of Socio-economic Development* 2015, 4(7): 167-174.
  6. Mangal A, Kumar V, Panesar S, Talwar R, Raut D, Singh S. Updated BG Prasad socioeconomic classification, 2014: a commentary. *Indian J Public Health*. 2015 Jan-Mar; 59(1):42-4.
  7. Shankar Reddy Dudala, Arlappa N, An Updated Prasad's Socio Economic Status Classification for 2013, *Int J Res Dev Health*. April 2013; Vol 1(2), 26-28
  8. International Standard Classification Of Occupations, Isco-08, Volume 1 Structure, Group Definitions And Correspondence Tables ,International Labour Office, Geneva, 2012.
  9. Tata Institute of Social Sciences (TISS), Mumbai and Ministry of Health and Family Welfare, Government of India. Global Adult Tobacco Survey GATS 2 India 2016-17.
  10. Mondal TK, Karmakar PR, Sarkar GN, Saha I, Dash I, Chatterjee S. Tobacco use pattern and awareness about tobacco hazards in a rural community of West Bengal. *Indian J Prev Soc Med* 2012; 43:361-4.
  11. National Family Health Survey (NFHS-5), India, 2019-20: Key Indicators, 22 States/UTs from Phase-I, International Institute for Population Sciences. Available from: [http://rchiips.org/NFHS/NFHS-5\\_FCTS/NFHS\\_5%20State%20Factsheet%20Compendium\\_Phase-I.pdf](http://rchiips.org/NFHS/NFHS-5_FCTS/NFHS_5%20State%20Factsheet%20Compendium_Phase-I.pdf) [Last accessed on 2021 Jan-12].
  12. GATS India Survey 2009-2010, Conducted by the International Institute for Population Sciences, Mumbai on Behalf of Ministry of Health and Family Welfare, Government of India. Available from: [http://www.indiaenvironmentportal.org.in/files/file/gats\\_india\\_report.pdf](http://www.indiaenvironmentportal.org.in/files/file/gats_india_report.pdf). [Last accessed on 2019 Dec 25].
  13. Saraswathi TR, Ranganathan K, Shanmugam S, Sowmya R, Narasimhan PD, Gunaseelan R. Prevalence of oral lesions in relation to habits: Cross-sectional study in South India. *Indian J Dent Res* 2006; 17:121-5.
  14. Meerjady S Flora, Christopher GN Mascie-Taylor, Mahmudur Rahman, Betel quid chewing and its risk factors in Bangladeshi adults, *WHO South-East Asia Journal of Public Health* 2012; 1(2):169-181.
  15. Gintarė Petronytė, Apolinaras Zaborskis, Aurelijus Veryga, Risk factors for alcohol use among youth and main aspects of prevention programs, *Medicina (Kaunas)* 2007; 43(2), 103-109.