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## **Awareness about Oral Cancer and Its Risk Factors among Rural Adult Population of Belagavi City, India**

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### **ABSTRACT**

**Background:** Oral Cancer is becoming a major Public health problem because of the current rise in its incidence particularly in underdeveloped countries.

**Objectives:** To assess the level of awareness and risk factors for oral cancer among rural adult population.

**Materials and Methods:** A self administered questionnaire was used to collect information from 400 randomly selected rural adult populations above 18 years of age. Statistical analyses were performed with the chi-square test. Ethical clearance and informed consent was obtained from the concerned authority and person.

**Result:** A total of 400 rural adult population participated in this study, out of which 200 (50%) were male and 200 (50%) were female. About 181 (45.2%) participants were aware with the term oral cancer and 182 (45.5%) knew about one or more risk factors for oral cancer. Majority 264 (66%) participants were unaware about warning signs of oral cancer. Only 40 (10%) participants think that oral cancer is preventable by avoiding consumption of tobacco and regular screening.

**Conclusion:** The study concluded that there is lack of awareness about oral cancer among the rural adult population and more meticulous effort is needed to raise awareness level in them.

**Keywords:** Oral cancer, Awareness, Risk factors, Adult population.

### **INTRODUCTION**

Oral cancer is one of the major public health problems and sixth most common cancer frequently seen in south and south East Asian Countries like India, Bangladesh, Taiwan, and Sri Lanka. <sup>[1]</sup>

According to National Cancer Control Programme it is estimated that total cancer

burden in India will be doubled by year 2026 (7 lakhs new cases per year to 14 lakhs) while recent WHO data indicates that oral cancer is ranked second among all the deaths occurring in India annually. <sup>[2,3]</sup>

Smoking, alcohol use and smokeless tobacco are considered to be the important risk factors for oral cancer. Alcohol and

tobacco use accounts for 80% of oral cancer. [1]

Oral cancer is generally detected in advanced stages. Undesirably, in developing country like India due to the people ignorance and low level of education they are unaware about warning signs, risk factors and preventable measures of oral cancer. [4] Hence the present study was conducted to assess the level of awareness and risk factors for oral cancer among rural adult population.

## **MATERIALS AND METHODS**

A cross-sectional study was conducted in the Bhutaramanahatti Village of Belagavi city, Karnataka. All the adult population who were 18 years and above and were willing to give written consent were included in this study. Adult population not willing to give consent was excluded. Duration of this study was 10 months from 1<sup>st</sup> February 2010 to 30<sup>th</sup> November 2010.

Due to lack of literature published on awareness and knowledge of oral cancer in India among adult population, 50% prevalence were considered and sample size was calculated using the formula  $n = (4pq/d^2)$ . The sample size came to be 400 (200 male and 200 female) after considering an allowable error of 5%.

The total adult population of Buthramanahatti village was 1114, out of which, 561 was male and 553 was female. 400 participants from the population of 1114 were selected randomly.

Pre-designed and self administered questionnaire were used to elicit the information on demographic factors, awareness of oral cancer, risk factors, warning signs and preventable measures about oral cancer.

Data was analyzed using SPSS software version 16. Chi-square test was calculated to see the association with  $p < 0.05$  as significant. Ethical clearance was

obtained from Institutional Ethics Committee (IEC) of KLEU, J.N.M.C. Written informed consent was obtained from participants after explaining about the whole study.

## **RESULTS**

Out of total 400 adult participants, there were 200 (50%) males and 200 (50%) females. Further the total adult population was classified into 3 age groups of 18-35 years, 36-50 years and above 50 years. More than half 218 (54.5%) of the adult population was from youngest age group i.e. 18-35 years. In the present study, 157 (39.2%) participants were illiterate and 94 (23.5%) had completed their secondary level of education. Majority 192 (48%) participants were working as a labourer followed by the student 132 (33%).

According to the present study, 242 (60.5%) participants did not know about any common site for oral cancer whereas 117 (58.5%) male participants and 125 (62.5%) female participants were not aware of any common site for oral cancer. About 158 (39.5%) were aware about common site of oral cancer, 108 (27%) participants knew multiple sites for oral cancer and 50 (12.5%) knew about at least one site for oral cancer. More than half 264 (66%) participants were unaware about any warning signs of oral cancer like small swellings, restricted mouth opening, white colour patches etc., 146 (34%) participants were aware of warning signs and 85 (21.3%) participants could recognize more than two warning signs. Majority of the males 123 (61.5%) and females 143 (71.5%) had no knowledge about treatment available for oral cancer. Tablets or chemotherapy was considered as the main treatment options by participants who were aware. (Table 1)

Regarding the risk factors for oral cancer, half of the males 100 (50%) and females 82 (41%) were aware about it. The result also revealed that 42 (21%) males and

57 (28.5%) females knew about at least three risk factors. Majority 218 (54.5%) participants were not aware about the risk factors for oral cancer and the difference was statistically significant. (Table 2)

More than half 211 (52.75%) participants had no idea where treatments for oral cancer were available while remaining 189 (47.25%) participant gave the

aforementioned responses. It was observed that Government hospitals were the most common response from both sexes. Less than a quarter 83 (20.75%) participants specifically mentioned the cancer hospital while 25 (6.25%) participants spoke about other treatment options like ayurveda and homeopathy. (Graph 1)

**Table 1: Oral cancer awareness in rural adult population.**

Awareness variables	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Common site for oral cancer			
Lip	3 (1.5)	0 (0)	3 (0.8)
Cheek	5 (2.5%)	6 (3)	11 (2.8)
Tongue	3 (1.5)	2 (1)	5 (1.2)
Floor of mouth	13 (6.5)	14 (7)	27 (6.8)
Any two	32 (16)	28 (14)	60 (15)
Any three	18 (9)	16 (8)	34 (8.5)
All four	8 (4)	6 (3)	14 (3.5)
Other	1 (0.5)	3 (1.5)	4 (1)
Don't know	117 (58.5)	125 (62.5)	242 (60.5)
Warning signs of oral cancer			
Any one	0 (0)	14 (7)	14 (3.5)
Any two	25 (12.5)	12 (6)	37 (9.2)
Any three	33 (16.5)	17 (8.5)	50 (12.5)
Any four	11 (5.5)	12 (6)	23 (5.8)
Any five	4 (2)	4 (2)	8 (2)
Any six	2 (1)	0 (0)	2 (0.5)
Any seven	0 (0)	2 (1)	2 (0.5)
Don't know	125 (62.5)	139 (69.5)	264 (66)
Different type of treatment available for oral cancer <sup>#</sup>			
Tablet/ Chemotherapy	49 (24.5)	47 (23.5)	96 (24)
Injection	41 (20.5)	32 (16)	73 (18.25)
Surgery	16 (8)	18 (9)	34 (8.5)
Radiation therapy	9 (4.5)	16 (8)	25 (6.25)
Others	5 (2.5)	8 (4)	13 (3.25)
Don't know	123 (61.5)	143 (71.5)	266 (66.5)

(<sup>#</sup> - Multiple answers were given by the participants)

**Table 2: Risk factors for oral cancer.**

Risk factors	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Smokeless tobacco/Gutkha	12 (6)	1 (0.5)	13 (3.2)
Tobacco smoker	36 (18)	10 (5)	46 (11.5)
Alcohol drinker	0 (0)	1 (0.5)	1 (0.2)
Smokeless tobacco/Gutkha and Tobacco smoker	10 (5)	13 (6.5)	23 (5.8)
All above	42 (21)	57 (28.5)	99 (24.8)
Don't Know	100 (50)	118 (59)	218 (54.5)

$$\chi^2 = 29.154, df = 5, p < 0.001^*$$

\*- significant

**Table 3: Different types of preventive measures for oral cancer.**

Preventive measures	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Quitting habits	52 (26)	28 (14)	80 (20)
Regular screening for oral cancer	6 (3)	11 (5.5)	17 (4.2)
Both above	22 (11)	18 (9)	40 (10)
Don't know	120 (60)	143 (71.5)	263 (65.8)

$$\chi^2 = 11.082, df = 3, p = 0.011^*$$

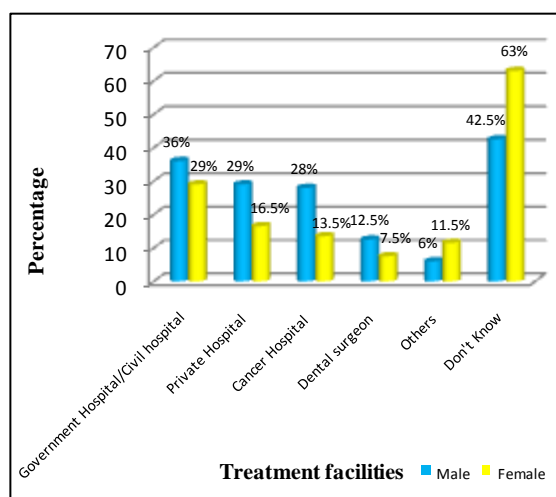
\*- significant

**Table 4: Materials used for brushing teeth.**

Materials	Male Frequency (%)	Female Frequency (%)	Total Frequency (%)
Tooth paste and tooth brush	111 (55.5)	81 (40.5)	192 (48)
Tooth paste and finger	9 (4.5)	8 (4)	17 (4.2)
Tooth powder and tooth brush	33 (18.5)	28 (14)	65 (16.2)
Tooth powder and finger	24 (12)	49 (24.5)	73 (18.2)
Finger and Salt	3 (1.5)	0 (0)	3 (0.8)
Finger and Charcoal/Tobacco	12 (6.5)	32 (16)	45 (11.2)
Don't Know	3 (1.5)	2 (1)	5 (1.2)

 $\chi^2 = 25.776$ , df= 6,  $p < 0.001^*$ 

\* - significant

**Graph 1: Awareness about treatment facilities available for oral cancer.**

(# - Multiple answers were given by the participants)

In the present study, 263 (65.8%) participants were not aware of any preventive measure for oral cancer. Among females 143 (71.5%) participants and among males 120 (60%) participants were unaware of any preventive measure for oral cancer. Quitting tobacco was considered to be the most important preventive measure for oral cancer by 80 (20%) participants followed by quitting the tobacco and regular screening for oral cancer 40 (10%). A significant difference was found between the male and female in respect to their awareness level of preventive measures about oral cancer. (Table 3)

Present study indicated that 192 (48%) participants brush their teeth daily using a toothbrush and toothpaste where as 90 (22.4%) participants brush using their finger but used tooth paste or tooth power

and 45 (11.25%) participants used charcoal or tobacco for brushing teeth which are a suspected carcinogenic. A significant difference was detected between male and female according to the materials used by them for brushing teeth. (Table 4)

## DISCUSSION

According to the present study, (60.5%) participants did not know about any common site for oral cancer and (62.5%) female participants were not aware of any common site for oral cancer. Among those who were aware, (27%) participants knew more than one site for oral cancer. The study done in Jeddah revealed that, (73.2%) participants were not aware about any site of oral cancer. Among those who were aware (11.6%) participants knew about the floor of the mouth as the common site for oral cancer while (9.6%) knew about the tongue as the common site for oral cancer. [5]

In our study (66%) participants were not aware of any signs and symptoms of oral cancer. About (62.5%) males and (69.5%) of females were unaware of warning signs of oral cancer. A study done in USA revealed that (44%) study subjects were not aware of any oral signs which is less compared to our study because of the high levels of education of study subjects in USA. [6]

The study done in Jeddah showed that (72.32%) subjects were not aware of any signs and symptoms of oral cancer whereas (73.7%) of males and (70.3%) of females were not aware of any signs and symptoms. In contrast to our study females in the

Jeddah study had better knowledge than males. [5]

Majority (71.5%) participants were not aware of any treatment for oral cancer like chemotherapy, surgery, radiation therapy while the study done in Jeddah population showed that (56.7%) were unaware of any treatment which was comparatively less than our study. This was because the respondents in Jeddah were from a higher socio-economic group and had better knowledge regarding the treatment. [5]

Less than half of the participants (45.5%) were aware of at least one risk factor for oral cancer (chewing tobacco, gutkha, smoking and alcohol consumption), (24.8%) participants identified all the risk factors while (32.8%) participants identified smokeless tobacco as the risk factor and (42.2%) participants identified smoking as the risk factor for oral cancer. In the Jeddah study (64.4%) subjects identified smoking as one of the risk factors, (53.4%) subjects identified alcohol as the risk factor and (54.4%) identified smokeless tobacco as the risk factor which was comparatively much higher than our study. [5] In another study done in USA in 1990 tobacco use was identified as the risk factor by (67%) of the participants, alcohol by (13%) participants, spicy food by (32%) and exposure to sunlight by (36%) participants. [6] In our study none of the participants identified sunlight and spicy food as a risk factor.

Present study showed that (52.75%) participants were unaware where treatment for oral cancer was available. Among those who were aware, maximum said they would go to the government (Civil hospital: secondary and tertiary hospital), private hospital (physician) for treatment while very few said that they would go to a dentist. On the contrary, the study done in Jeddah showed that (84.7%) would visit the dentist for treatment and (14%) would go to a physician. [5]

About (53.8%) participants were unaware that oral cancer can be prevented while (34.5%) believed that oral cancer is preventable. (10%) participants believed that oral cancer can be prevented by quitting chewing of tobacco and going for regular screening of oral cancer while (20%) believed that only by quitting tobacco, oral cancer can be prevented. Only (4.2%) participants believed that they should regularly go for screening. This shows that there is a lack of knowledge, that oral cancer can be prevented and there is a misconception that quitting habits alone can prevent oral cancer.

Majority (98.75%) participants brush their teeth daily and the study done in New Delhi found that (95.6%) participants used to brush their teeth daily which was similar in result to our study. [7] In our study (97.75%) male participants and (100%) female participants used to brush their teeth daily. A study done in Haryana found that (83.6%) female and (78.5%) males used to brush teeth daily which was less than our result. [8]

Present study revealed that (52%) participants used tooth paste for brushing while a study done in Delhi found (83.6%) used tooth paste for brushing. [7] About (60%) of males and (44.5%) of females used toothpaste for brushing teeth which was comparatively less than the study done in Haryana where (81.4%) females and (70.5%) of males used tooth paste for brushing their teeth. In our study (74%) of male participants and (54.5%) female participants used toothbrush for brushing teeth while in Haryana study, (61.4%) males and (75.8%) females used tooth brush for brushing teeth. [8]

## CONCLUSION

The study concluded that half of the population was unaware about the risk factors, warning signs and preventive measures about oral cancer. The preventive



measures like quitting habits, regular visit to the dentist, regular screening for oral cancer etc, was not practiced by the rural adult population. Thus there is a need to create awareness among the rural adult population through educational program on cancer prevention and preventable risk factors.

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