# **Research Article**

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# Awareness of oral cancer and its risk factors in a rural community in Mandya, Karnataka, India

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#### **ABSTRACT**

**Background:** Oral cancer is a major public health problem faced by mankind today. In India, because of cultural, ethnic, geographic factors and the popularity of addictive habits, the frequency of oral cancer is very high. Thus the present study was undertaken with the objective to determine the level of awareness of oral cancer and the associated risk factors among the general population in a rural community.

**Methods:** The cross sectional study was done among the subjects in 3 villages selected randomly from each primary health centre area covering a sample size of 479 in assessing their knowledge regarding oral cancer.

**Results:** More than one third of the respondents believed that oral cancer is preventable, 41.8% opined that oral cancer can be treated, 18.6% said that oral cancer is contagious and 35.1% opined that the risk of oral cancer increased with age. More than half of the study subjects in 16 -30 years age group knew that oral cancer is preventable and treatable. Nearly 40% of the respondents in the present study did not know the symptoms of oral cancer. Only 16.1% of the respondents had got their oral cavity examined during the past 6 months and 7.7% had undergone screening for oral cancer.

**Conclusions:** Our study found that the level of awareness among the subjects regarding oral cancer and its risk factors was poor.

Keywords: Oral cancer, Awareness, Risk factors

### INTRODUCTION

Oral cancer is a major public health problem faced by mankind today. In India, because of cultural, ethnic, geographic factors and the popularity of addictive habits, the frequency of oral cancer is very high. It ranks number one in terms of incidence among men and third among women. Oral cancer accounts for 30–40% of all the malignant tumors in India.

Oral cancer occurs in various sites of the oral cavity: tongue, lips, floor of the mouth, soft palate, tonsils, salivary glands and oropharynx. Risk factors for oral

cancer includes smoking, alcohol use, smokeless tobacco products, dietary factors, exposure to carcinogens in the workplace and HPV (Human Papilloma Virus) infections, with smoking and alcohol having synergistic effects. <sup>3-5</sup> Majority of oral cancers arise from long standing premalignant lesions. <sup>4</sup> Early diagnosis greatly increases patient's chances of survival as the mouth is very accessible for a clinical or self-examination. <sup>5</sup> However, most of the cases are diagnosed at an advanced stage, indicating lack of awareness regarding oral cancer and its risk factors in the general population. Most of the cases of oral cancer can be prevented if there is adequate knowledge regarding the risk factors.

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Thus the present study was undertaken with the objective to determine the level of awareness of oral cancer and the associated risk factors among the general population in a rural community. The aim of the study was to determine the awareness regarding oral cancer and its risk factors among the general population in rural community.

#### **METHODS**

A cross sectional community based study was conducted to assess the awareness regarding oral cancer in the rural field practice area of Adichunchanagiri Institute of Medical Sciences, B. G. Nagara, Mandya. There are 3 primary health centres in our field practice area. By simple random sampling, one village was selected from each primary health centre area. The 3 villages selected were Honnenahalli, Agachahalli and Kodihosur having a total population of 2650. The study was carried out for a period of 3 months from June to August 2015. All the houses in the 3 villages were visited and data was collected from one individual in every house, preferably the head of the family. The houses kept locked on three successive visits and those who did not give consent were excluded from the study. Thus the total number of study subjects was 479.

Institutional Ethical Committee clearance was obtained before the start of the study. Information regarding oral cancer was collected using pretested, structured questionnaire. The questionnaire consisted of information regarding socio demographic profile, knowledge of oral cancer and its symptoms, risk factors of oral cancer, habits and details of oral cavity examination. Data was entered in Microsoft Excel worksheet and analysed using Epi info software. The results were expressed in terms of percentages, proportions and analytical tests like chisquare and logistic regression were applied.

#### **RESULTS**

Among the 479 study subjects, seventy percent of them were males and the rest females. More than one third (37.8%) of the subjects were in the 31 -45 years age group. The remaining were in the age group of 16-30 years (19.6%), 46-59 years (21.9%),  $\geq$ 60 years (20.5%) and only 1 was aged 15 years.

More than one fifth of the subjects had studied till high school. Only 18.6% of them were graduates and 16.5% were illiterate (Table 1). Majority, 186 (38.8%) were private employees, 24.4% were farmers, 14.6% of them were home-makers, 12.3% of them had a government job and 7.9% were unemployed.

Nearly two third (62.2%) of the subjects' belonged to nuclear family followed by joint family (28.8%) and 3 generation (8.6%) family. Most (34.7%) of the study subjects belonged to class V followed by class IV (28.8%) in the modified B G Prasad socioeconomic status classification (Table 2).

Table 1: Distribution of study subjects according to their education.

Education	Number	Percentage
Illiterate	79	16.5
Primary school	98	20.5
Middle school	10	2.1
High school	114	23.8
SSLC	27	5.6
PUC	62	12.9
Graduate	89	18.6
Total	479	100

Table 2: Distribution of study subjects according to their socioeconomic status (Modified B.G.Prasad Classification).

Socioeconomic status	Number	Percentage
I	30	6.3
II	56	11.7
III	89	18.6
IV	138	28.7
V	166	34.7
Total	479	100

Among the 479 study subjects, 131(27.3%) knew someone who had oral cancer. Majority 244 (51%) did not know the commonest age group of occurrence of oral cancer. Most (60.3%) did not know which gender is frequently affected by oral cancer. With regard to the commonest site of occurrence of oral cancer, the responses were 51 (10.6%) and 40 (8.4%) respectively for tongue and floor of the mouth. Half of the subjects did not know if oral cancer is preventable. Only 200 (41.8%) knew that oral cancer can be treated. More than half of the study subjects did not know whether oral cancer is contagious or not. Only 35.1% were of the opinion that the risk of oral cancer increases with age (Table 3).

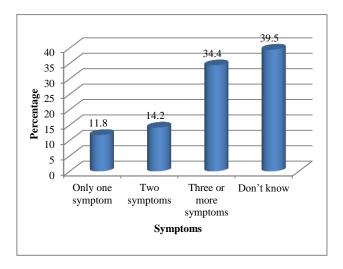


Figure 1: Distribution of study subjects according to their awareness of symptoms of oral cancer.

Table 3: General awareness of oral cancer among the study subjects.

Response	Number	Percentage		
1. Do you know anyone w				
Yes	131	27.3		
No	348	72.6		
2. Oral cancer is common	n in which a	age group?		
Age (years)				
<15	8	1.7		
15-45	36	7.5		
45-60	90	18.8		
>60	89	18.6		
Don't know	244	51.0		
More than one response	12	2.4		
3. Oral cancer frequently	affects wh	ich gender?		
Gender				
Male	120	25.1		
Female	70	14.6		
Don't know	289	60.3		
4. Oral cancer frequently	occurs at	which site?		
Site				
Gum	31	6.5		
Palate	25	5.2		
Tongue	51	10.6		
Floor of the mouth	40	8.4		
Cheek	72	15		
Don't know	241	50.3		
Two sites	15	3.1		
Three sites	4	0.8		
5. Can oral cancer be pre	evented?			
Response	45.5	265		
Yes	176	36.7		
No	58	12.1		
Don't know	245	51.1		
6. Can oral cancer be tre	ated?			
Response	200	41.0		
Yes	200	41.8		
No Dani't language	66	13.8		
Don't know	213	44.5		
	7. Is oral cancer contagious?			
Response	90	10.6		
Yes	89	18.6		
No Don't language	134	28.0		
Don't know	256	53.4		
8. Does risk of oral cancer increase with age?				
Response	1.00	25.1		
Yes	168	35.1		
No Don't leave	65	13.6		
Don't know	246	51.4		

Among the 479 study subjects, majority 189 (39.5%) did not know the symptoms of oral cancer. Only one third (34.4%) of the subjects knew 3 or more symptoms of oral cancer. The commonly known symptoms were lump, ulcer, white/red patch, difficulty in chewing, undue

falling of teeth and bleeding from gum (Figure 1). Among the 479 study subjects, 42.8% of the study subjects knew 3 or more risk factors of oral cancer. More than one fourth (26.5%) did not know the risk factors for oral cancer.

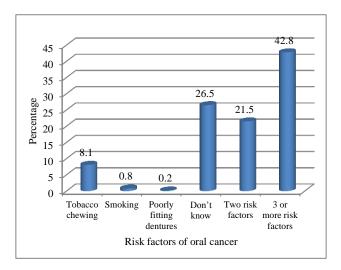


Figure 2: Distribution of study subjects according to their awareness of oral cancer risk factors.

However among the 479 study subjects, 34.8%, 23.6% and 39.9% were smokers, tobacco chewers and alcoholics respectively (Figure 2).

Among the 479 study subjects, majority (64.5%) had not undergone a health checkup in 6 months, only 77 (16.1%) had their oral cavity examined during the health checkup. Majority (92.3%) had not undergone screening for oral cancer (Table 4).

Table 4: Distribution of study subjects according to their health seeking behavior in the past 6 months.

Health seeking behaviour	Number	Percentage
Health checkup in 6 months		
Yes	170	35.5
No	309	64.5
Oral cavity examination		
Yes	77	16.1
No	402	83.9
Screening for oral cancer		
Yes	37	7.7
No	442	92.3

The younger age groups had better knowledge regarding prevention of oral cancer. More than half of the study subjects in 16-30 years age group opined that oral cancer is preventable. Knowledge of prevention was better in individuals with a higher educational level. Knowledge of prevention was highest in socio economic class I (Table 5).

Knowledge of treatment was better in the younger age groups (16 -30 years). More than half of the graduates were aware that oral cancer can be treated (Table 6).

Table 5: Distribution of study subjects based on knowledge of treatment of oral cancer and sociodemographic variables.

Socio-			Chi	Р
demographic	Yes	No	square	value
variables			value	
Age(years)	53	41		
16-30	(56.4)	(43.6)		< 0.001
	64	118		
31-45	(35.2)	(64.8)	21.47	
46.50	33	72	d.f = 3	
46-59	(31.4)	(68.6)	_	
60 and above	26	72		
	(26.5)	(73.5)		
Education				
Illiterate	14	65		
D.	(17.7)	(82.3)		
Primary school	32	66		
Middle school	(32.7)	(67.3) 7 (70)		
Wilddle School	3 (30)	71		
High school	(37.7)	(62.3)	22.63	< 0.001
	11	16	d.f = 6	<0.001
SSLC	(40.7)	(59.3)		
2212	28	34		
PUC	(45.2)	(54.8)		
Cara darasta	45	44	_	
Graduate	(50.6)	(49.4)		
Occupation				
Unemployed	6	32		
Offeniployed	(15.8)	(84.2)	_	
Student	6	3		0.01
~	(66.7)	(33.3)		
Housewife	31	39	15.00	
	(44.3)	(55.7)	15.02 d.f =5	
Farmer	36 (30.8)	81	u.1 =3	
Private	74	(69.2) 112		
employee	(39.8)	(60.2)		
Government	23	36		
employee	(39)	(61)		
Socioeconomic		( - )		
	17	13		
I	(56.7)	(43.3)		0.05
П	20	36		
11	(35.7)	(64.3)	9.70	
Ш	35	54		
-11	(39.3)	(60.7)	d.f =4	0.03
IV	55	83		
	(39.9)	(60.1)		
V	49	117		
	(36.7)	(63.3)		

In our study as the education level increases, the odds of having better knowledge that the treatment for oral cancer is possible also increases. (aOR for Graduate and above being 0.390 with p value of 0.004 which is significant).

Table 6: Distribution of study subjects based on knowledge of treatment of oral cancer and sociodemographic variables.

Socio -demographic	Treatment		Chi	P
variables	Yes	No	square value	value
Age(years)				
16-30	56 (59.6)	38 (40.4)	15.95 d.f =3	0.001
31-45	69 (37.9)	113 (62.1)		
46-59	36 (34.3)	69 (65.7)		
60 and above	39 (39.8)	59 (60.2)		
Education				
Illiterate	24 (30.4)	55 (69.6)		0.01
Primary school	33 (33.7)	65 (66.3)		
Middle school	3 (30)	7 (70)		
High school	57 (50)	57 (50)	15.31 d.f = 6	
SSLC	10 (37)	17 (63)		
PUC	26 (41.9)	36 (58.1)		
Graduate	47 (52.8)	42 (47.2)		
Occupation				
Unemployed	8 (21.1)	30 (78.9)	26.3 d.f =5	<0.001
Student	30 (77.8)	2 (22.2)		
Housewife	44 (62.9)	26 (37.1)		
Farmer	46 (39.3)	71 (60.7)		
Private employee	75 (40.3)	111 (59.7)		
Government employee	20 (33.9)	39 (66.1)		

# **DISCUSSION**

The present study was conducted in the rural field practice area of our medical college to determine the general awareness of oral cancer and its risk factors. Knowledge about oral cancer and its risk factors is crucial for its prevention, early diagnosis and treatment.

In the present study, 36.7% of the respondents believed that oral cancer is preventable, 41.8% opined that oral cancer can be treated, 18.6% said that oral cancer is

contagious and 35.1% opined that the risk of oral cancer increased with age. More than half of the study subjects did not have adequate knowledge regarding oral cancer. In a study conducted in Gorakpur by Mamta et al, 74.1% of the respondents believed that oral cancer is preventable, 10.8% opined that oral cancer is contagious and 40.9% of respondents did not associate increasing age with increased possibility of having oral cancer. The better awareness of oral cancer being a preventable disease might be due to the fact that the study was done in an urban area where the people are well informed about the health issues they come across. But in a study conducted in rural Bangalore by Shah et al, only 19.28% of the respondents knew that oral cancer can be prevented.

The general awareness of oral cancer varied significantly across various age groups, with the younger age groups (<30 years) being more aware. More than half of the study subjects in 16 -30 years age group knew that oral cancer is preventable and treatable. Similar results were obtained in a study conducted by Mamta et al.<sup>4</sup> The increased awareness in the younger age groups may be because of exposure to mass media and anti-tobacco campaigns.

In the present study, knowledge of prevention was better in individuals with a higher educational level. More than half of the graduates were aware that oral cancer can be prevented and treated. In a study done by Pakfetrat et al, a significant correlation was observed between level of education and knowledge scores. Study done by Mamta et al showed the similar finding wherein the general awareness was more in those respondents whose education level was high school or more and was lower among respondents who were illiterate or had only primary education.

Nearly 40% of the respondents in the present study did not know the symptoms of oral cancer. The commonly known symptoms were lump and ulcer in the mouth. In studies conducted in Gorakpur, Portugal, Chennai and Turkey, 60%, 90%, 68.3% and 79.2% of the respondents respectively knew about the symptoms of oral cancer. 4, 5, 7, 8 This variation in the findings can be attributed to the rural urban difference among the study population. Knowledge of symptoms will lead to earlier health seeking behaviour which in turn facilitates early diagnosis and treatment. Diagnosis at an early stage will increase the survival time and reduce the health care cost.

Around 43% of respondents knew 3 or more risk factors of oral cancer. Tobacco chewing (8.1%) and smoking (0.8%) were the commonly known risk factors of oral cancer. Risk factors of oral cancer were not known to 26.5% of the respondents. Among the study subjects, 34.8%, 23.6% and 39.8% were smokers, tobacco chewers and alcoholics respectively.

Nearly 90% and 75.4% of the subjects firmly believed that smokeless tobacco and smoking respectively are risk factors for oral cancer, in a study done in Gorakhpur. <sup>4</sup>In a study done by Monterio et al, the common risk factors identified were tobacco (89.5%) and alcohol (32.3%).<sup>5</sup> Satyanarayanan et al, found that with regard to risk factors, 50% of the respondents knew that cigarette smoking was a risk factor for oral cancer. Other risk factors identified were snuff dipping (23%),dental fillings(3%) and intake of alcohol(2%). The awareness of any of three cancer risk factors studied namely smoking, dietary habits and alcohol, was found to be 21.2 %, 62.1 % and 12.1 percent respectively in a study conducted by Singhal et al. 10 All these risk factors are well known to cause oral cancer. Knowledge of risk factors is essential to prevent occurrence of oral cancer, to empower individuals to protect and improve their own health.

Only 16.1% of the respondents had got their oral cavity examined during the past 6 months and 7.7% had undergone screening for oral cancer. Along with knowledge of symptoms and risk factors of oral cancer, screening the general population for oral cancer is vital to prevent oral cancer.

#### **CONCLUSION**

Our study found that the level of awareness among the subjects regarding oral cancer and its risk factors was poor. Thus health education regarding oral cancer and its risk factors with periodic reinforcement will play an important role in creating awareness.

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#### REFERENCES

- Shenoy N, Ahmed J, Saranya B, Shenoy A, Kamath P, Srikant N. Oral Cancer Awareness among Undergraduate Medical Students of Dakshina Kannada, India. Sch J App Med Sci. 2013;1(5):632-6.
- 2. Byakodi R, Byakodi S, Hiremath S, Byakodi J, Adaki S, Marathe K. Oral Cancer in India: An Epidemiologic and Clinical Review. J Community Health. 2012;37(2):316-9.
- 3. Shah SP, Praveen BN. Awareness of Oral Cancer in Rural Bangalore Population: A Questionnaire Based Study. International Journal of Scientific Study. 2014;1(6):14-6.
- 4. Agrawal M, Pandey S, Jain S, Maitin S. Oral Cancer Awareness of the General Public in Gorakhpur City,

- India. Asian Pacific J Cancer Prev. 2012;13(10):5195-9.
- 5. Monteiro LS, Salazar F, PachecoJ, Warnakulasuriya S. Oral Cancer Awareness and Knowledge in the City of Valongo, Portugal. Int J Dent. 2012:1-8.
- 6. Pakfetrat A, Falaki F, Esmaily HO. Oral Cancer Knowledge among Patients Referred to Mashhad Dental School, Iran. Archives of Iranian Medicine. 2010;13(6):543-8.
- Gopal KS, Duraiselvi P. Awareness and Knowledge of Oral Cancer in Outpatient Departments of Meenakshiammal Dental College, Chennai: A Survey Based Questionnaire Study. Int J Adv Health Sci. 2014;7(1):12-5.
- 8. Peker I, Alkurt MT. Public awareness level of oral cancer in a group of dental patients. J Contemp Dent Pract. 2010;11(2):49-56.

- 9. Sathyanarayanan R, Karthigeyan R, Dinesh DS. Awareness about oral cancer among Non medical university students of Puducherry. JIDENT. 2012;1:1-5.
- Singhal RK, Vidya SM, Singh HK, Surwade S. A Study to Determine Awareness Regarding Cancer Risk Factors and to Understand Cancer Treatment Preferences in General Population of Western Uttar Pradesh, India. International Journal of Contemporary Medicine. 2014;2(1):122-7.

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