

**ASSESSMENT OF GENERAL AWARENESS AND KNOWLEDGE OF ORAL CANCER IN TERTIARY CARE HOSPITAL IN KANCHIPURAM****RAMASAMY PADMA AND SIVAPATHAM SUNDARESAN****Medical Research Centre, SRM Medical College Hospital and Research Centre, SRM University, Kattankulathur – 603203, Tamilnadu.***ABSTRACT**

Oral cancer is a most prevalent cancer, early diagnosis of which greatly increases the probability of cure and survival rates. Lack of public awareness had been considered to be a potent barrier for early detection of cancer. Hence, the present study was carried out to ascertain general awareness, knowledge of risk factors, symptoms and psychological factors association among oral cancer subjects. A questionnaire based study was carried out by direct interview. Chi-square and Students t-test were used for statistical analysis at $p < 0.05$ significance. A total of 198 subjects were participated in the study, male subjects were predominates a female group in 2:1 ratio. We found a positive association of increasing age and knowledge of risk factor ($p < 0.05$). Among both gender, 62.1% of subjects were in middle age of 40-59 years of age groups. In our study, 76.5% subjects had awareness about oral cancer, 50.06% had knowledge of risk factors and 27.27% had knowledge of clinical sign and symptoms. A total of 62% subjects from lower socioeconomic classes and those had psychological thought of fear, carelessness and medical mistrust due to illiteracy. The socioeconomic status exists significant association with psychological factors at $p < 0.05$. However, though the subjects aware of oral cancer still the incidences increases. Hence, the study suggested that need more structured awareness programs such as television, newspaper and radio advertisements in addition to posters and leaflets about the early signs, symptoms and etiology of oral cancer.

KEYWORDS: Awareness, Oral cancer, Risk factors, Signs and symptoms, smoking, prevention**SIVAPATHAM SUNDARESAN***Medical Research Centre, SRM Medical College Hospital and Research Centre, SRM University, Kattankulathur – 603203, Tamilnadu.*

INTRODUCTION

Oral cancer is one of the leading causes of adult deaths worldwide. In India, It is one of the most common cancers and major public health problem with rampant tobacco smoking and chewing habits, where an estimated 80,000 new cases and 46,000 oral cancer related deaths occur yearly and there was evidence that this cancer was more common in developing countries.¹ Oral cancers with its widely variable rate of occurrence, has one of the highest incidences in India constituting around 12% of all cancers in men and 8% of all cancers among women. An alarming increase in tobacco related cancers represented 42% in male and 18.3% in female cancer deaths.² Currently, India is facing a variety of nontransferable diseases or epidemics like cancer that need immediate attention.³ Oral cancer is a heterogeneous group of cancers arising from different parts of the oral cavity, with different predisposing factors, prevalence, and treatment outcomes. Among all subsites, buccal mucosa carcinoma was the common subsite in South-Indian population. In India, more than 75% of oral cancer reported subjects were associated with a history of tobacco consumption in smoke or smokeless form.⁴ In India, the extremely popular use of the smokeless tobacco, product called gutkha, renders its population and especially its youth to a greater risk of developing a premalignant disease resulting in increased incidence of oral cancer in younger patients.⁵ WHO stated that on an average up to 30% of all cancers were tobacco related in developing countries.⁶ Although majority of oral cancers were readily visible, almost 70% of the subjects presented with advanced stage III and IV of disease. Similar late presentation was observed in the cancer registry data of the state of Kerala.⁷ Panzarella reported that about 30% of oral squamous cell carcinoma patients usually wait for more than 3 months before consulting medical/dental professional after self-discovery of signs and symptoms of oral cancer. This delay accounts for approximately 60% due to cognitive and psychosocial variables.⁸ It has been reported that lack of awareness, knowledge among the public about oral cancer and the associated risk factors is the primary reason for delayed presentation of oral cancer. Increasing awareness of the signs and symptoms of cancer contributes to early detection of the disease which improves probability to cure. Where tests for cancer of specific sites are available and facilities were appropriate, screening of apparently healthy individuals can disclose cancer in early or precursor stages, when treatment may be most effective. Early detection is only successful when linked to effective treatment.⁹ Therefore, the aim of this study was to ascertain level of general awareness, knowledge of risk factors, sign and symptoms and psychological factors and its relation to demographic, socioeconomic status with oral cancer subjects.

MATERIALS AND METHODS

A questionnaire was used to conduct the study, which consisted sociodemographic, socioeconomic scoring according to kuppasamy's modified scale and also four sections of General awareness, Knowledge of risk

factors, Knowledge of sign and symptoms and Psychological factors.¹⁰ The cross-sectional study was carried out with estimated 198 subjects in oral oncology department of Arignar Anna Memorial Cancer Hospital and Research Centre, Kanchipuram. The study was obtained ethical clearance from directorate of medical education, government of Tamilnadu, India. All the participants were included with their informed consent.

(i) Measuring tool

The questionnaire comprised 28 closed-ended questions that assessed the subject's general awareness, knowledge of risk factors, early sign and symptoms and psychological factors relevant questions. Sociodemographic information age, gender and socioeconomic information occupation, education level and total family income were also recorded. Response categories for each of the questions were 'yes', 'no' and 'don't know' the respondents were expected to tick mark only the most appropriate one. These were coded as 1, 2 and 3 respectively. In the structured questionnaire there were twenty eight closed-ended questions to be answered by each respondent. The questionnaire elicited a 'yes' or 'no' or 'donot know' response. The response 'no' was given a score of 1, 'yes' was score of 2 and 'donot know' score 3 respectively. Responses were scored in accordance with defined rules as previously published.¹¹

(ii) Statistical analysis

Data analysis was carried out using SPSS version 16. Chi-square test and Student's t-test used to evaluate factors association with oral cancer awareness and knowledge. $P < 0.05$ was considered for statistical significant.

RESULTS

Table 1 shows the model questionnaire which includes four domains of general awareness, knowledge of risk factor, clinical signs/ symptoms and psychological factors. Figure.1 shows the age and sex distribution of study population. A total of 198 subjects was participated which constitute 125 (63.1%) males and 73 (36.9%) females. Most of the subjects 63 (31.8%) were 60-79 years of age groups (Fig.1). In our study, 62% of subjects from lower socioeconomic classes followed by other classes based on scoring of education, occupation and income level (Fig.2). Since they are from illiteracy had psychological thoughts like fear, unawareness, denial and medical mistrust. The study found that fear, carelessness and medical mistrust had been associated at $p < 0.05$ level (Table 2). There was no significance difference in the mean age among male and female groups. Male subjects had good knowledge of smoking and smokeless tobacco risk factor causes $p = 0.015$ and $p = 0.046$ respectively (Table 3). Similarly, Table 4 illustrated female subject's knowledge on risk factors. Female group also had knowledge on cause of smoking ($p = 0.032$) and smokeless tobacco ($p = 0.034$), whereas both gender did not have knowledge on causes of other risk factors. However, an increased age group of subjects also had significant association with knowledge of risk habits. Fig.3 illustrated that general awareness, knowledge on risk factors, clinical sign and

symptoms of mean score of positive responders. The general awareness of oral cancer was assessed via eight close ended questions. Overall, 76.5% of general

awareness of oral cancer, 50.06% had good knowledge of risk factors but in contrast, only 27.27% of subjects aware of clinical sign and symptoms.

Table 1
The Questionnaire

(a) General awareness of oral cancer	
1	Have you heard of oral cancer?
2	Do you know anyone who had cancer?
3	Do you know the cause of oral cancer?
4	Is oral cancer contagious disease?
5	Is oral cancer preventable?
6	Does risk of cancer increase with age?
7	Is poor oral health cause of disease?
8	Is oral cancer treatment possible?
(b) Knowledge of risk factors	
9	Can smoking cause oral cancer?
10	Can alcohol cause oral cancer?
11	Can Smokeless tobacco
12	Can pan chewing cause oral cancer?
13	Can betel nuts chewing cause oral cancer?
14	Can poor oral health cause oral cancer?
15	Can sharpen teeth risk for oral cancer?
16	Can Less nutritional/ poor diet risk for oral cancer?
(c) Symptoms related knowledge	
17	Is growth of abnormal tissue sign of oral cancer?
18	Is red/ white patch sign of oral cancer?
19	Is reduced mouth opening sign of oral cancer?
20	Is difficult to eat food sign of oral cancer?
21	Is continue pain in jaw sign of oral cancer?
22	Is bleeding sign of oral cancer?
23	Is non-healing wound sign of oral cancer?
(d) Psychological variables	
24	Do you Unawareness of oral cancer?
25	Do you denial of oral cancer?
26	Had fear of oral cancer?
27	Do you mistrust medical service?
28	Did you Carelessness?

Figure 1
Distribution of age groups among gender (n=198)
Distribution of age groups and gender

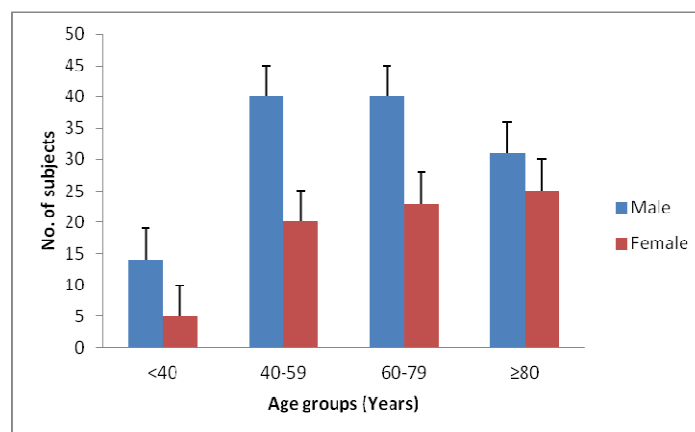


Figure 2
Distribution of socioeconomic class among oral cancer subjects (n-198)

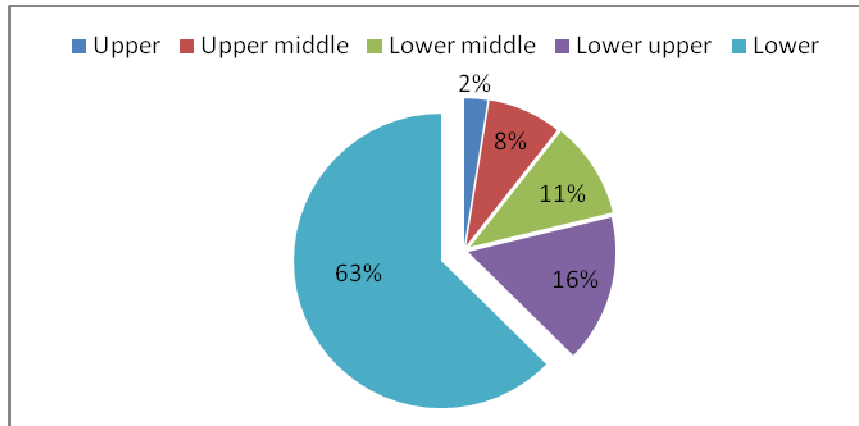


Table 2
Association of psychological factors among socioeconomic status of oral cancer subjects

Factors	Socioeconomic status			P-value
	Yes	No	Donot know	
Unawareness	143 (72.2)	23 (11.6)	32 (16.1)	0.461
Denial	131 (66.2)	24 (12.1)	43 (21.7)	0.642
Fear	117 (59.1)	39 (19.7)	42 (21.2)	0.039*
Medical service mistrust	117 (59.1)	45 (22.7)	36 (18.2)	0.042*
Carelessness	89 (45)	51 (25.7)	58 (29.3)	0.024*

* The statistical significance exists at $p < 0.05$ by chi-square methods.

Table 3
Knowledge on risk factor awareness association with age of male subjects of oral cancer

Characteristics	Age of male (Mean \pm SD)			P-value
	Yes	No	Donot know	
Knowledge of risk factors				
Can smoking cause oral cancer?	56.64 \pm 15.76	49 \pm 12.01	52.06 \pm 19.04	0.015*
Can alcohol cause oral cancer?	53.88 \pm 15.6	55.45 \pm 18.84	56.08 \pm 17.49	0.819
Can Smokeless tobacco	55.57 \pm 16.84	55.06 \pm 17.73	51 \pm 14.15	0.046*
Can pan chewing cause oral cancer?	55.29 \pm 17.34	48.25 \pm 13.67	58 \pm 13.16	0.141
Can betal nuts chewing cause oral cancer?	55.05 \pm 16.42	55.24 \pm 17.29	51.33 \pm 15.61	0.671
Can poor oral health cause oral cancer?	50.9 \pm 17.19	58.7 \pm 16.42	54.66 \pm 15.47	0.132
Can sharpen teeth risk for oral cancer?	53.25 \pm 13.84	55.84 \pm 18.41	54.58 \pm 16.41	0.824
Can Less nutritional/ poor diet risk for oral cancer?	55.9 \pm 16.5	53.72 \pm 17.93	54.6 \pm 15.62	0.887

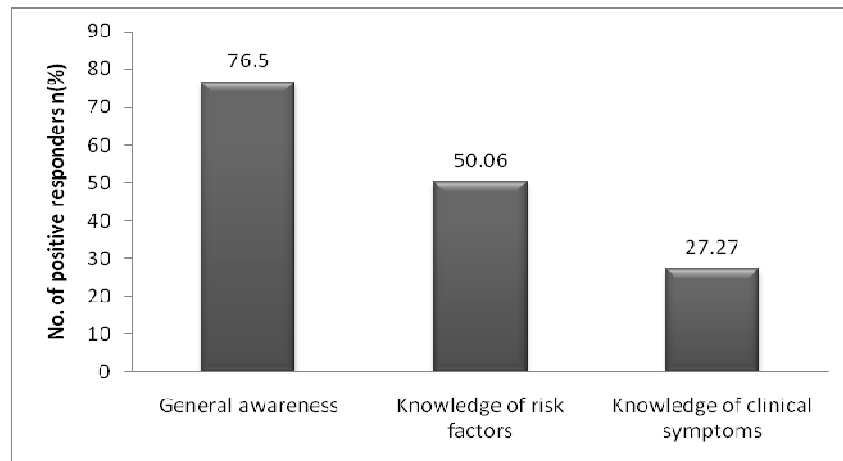
*The p-value statistically significant at $p < 0.05$ level by Student's t-test.

Table 4
Knowledge on risk factor awareness association with age of female subjects of oral cancer

Characteristics	Age of Female (Mean \pm SD)			P-value
	Yes	No	Donot know	
knowledge of risk factors				
Can smoking cause oral cancer?	59.6 \pm 17.4	54.12 \pm 16.16	52.64 \pm 15.05	0.032*
Can alcohol cause oral cancer?	56.35 \pm 15.94	58.56 \pm 17.77	62.27 \pm 20.79	0.579
Can Smokeless tobacco	59.51 \pm 16.27	52 \pm 19.58	57.08 \pm 15.98	0.034*
Can pan chewing cause oral cancer?	57.36 \pm 17.44	56.83 \pm 15.84	58.65 \pm 16.72	0.954
Can betal nuts chewing cause oral cancer?	57.6 \pm 17.25	59.4 \pm 18.15	56.71 \pm 16.03	0.914
Can poor oral health cause oral cancer?	54.3 \pm 17.1	61.77 \pm 15.56	58.32 \pm 17.27	0.427
Can sharpen teeth risk for oral cancer?	61.58 \pm 15.21	52.37 \pm 18.3	58.43 \pm 16.7	0.231
Can Less nutritional/ poor diet risk for oral cancer?	52.38 \pm 19.4	60.4 \pm 16.42	58.03 \pm 16.33	0.41

*The p-value statistically significant at $p < 0.05$ level by Student's t-test.

Figure 3
Overall awareness and knowledge score of oral cancer



DISCUSSION

This investigation reports a comprehensive picture of the current status of overall general awareness, knowledge of risk factors and symptoms of oral cancer among the oral cancer subjects. Mouth cancer was largely preventable by avoiding known risk factors and national and international guidelines stress the importance of early detection.¹² Amongst the various patient related factors, the socioeconomic factors and health seeking behaviour of the patients may have a direct bearing on the stage of disease at presentation and thus on the overall prognosis.¹³ Our study reported that lower socioeconomic subjects had significant association with psychological factors. Delayed presentation of oral cancer was mainly due to lack of awareness of the public about oral cancer and its associated risk factors which also results in increased treatment morbidity and reduced survival rates.² The results from this study had reported overall general awareness of oral cancer was good. However, subjects had poor knowledge of symptoms, even though aware of oral cancer. The previous study revealed that even though increased knowledge and awareness of oral cancer and their risk factors, one third of the subjects had one or more high risk habits. The peak age group of the subjects with high risk habits was 40-59 years.⁷ Similarly, our study also reported that mean age of subjects was associated with knowledge on risk factors of smoking and smokeless tobacco but rest of the factors did not associated. Guneri also reported in his study that apart from alcohol and tobacco, dietary habits and poor oral hygiene have also been found to be associated with a high risk of oral and oropharyngeal cancer.¹⁴ Hence, the study suggested needs more awareness of causes and risk of oral cancer. Sahoo

reported in his study that results of an eight year primary prevention follow-up study of oral cancer among Indian villagers had shown through extensive and persuasive health education programme, it was possible to control the tobacco habits in the community and he suggested that the best suited recommendations for Indian scenario would be the health education of public, practice of tobacco control and encouragement for tobacco control.³ Furthermore another study has reported television advertising offered the largest coverage in an oral cancer awareness campaign in comparison to other methods.¹⁵

CONCLUSION

In summary, the present study revealed the awareness and knowledge of oral cancer subjects. Though, the subjects aware of oral cancer, still the incidence and mortality increases due to lack of knowledge of risk factors and clinical sign and symptoms of oral cancer. Therefore, increase in the taxation across the range of tobacco products, and adequate utilization of mass media (Print media and TV channels) would be highly effective in oral cancer control and prevention.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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REFERENCES

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int J Cancer*. 2010; 127: 2893-17.
2. Sivasankari NP, Kaur S, Reddy KS, Rao KR, Madan kumar SJ. Micronucleus assay-screening tool in the diagnosis of oral carcinoma in tobacco users. *Int J Pharm Bio Sci*. 2012; 3(4): (B) 646 – 51.

3. Sahoo S, Suvarna S, Chandra A, Wahi S, Kumar P, Khanna G. Prevalence based Epidemiological Cancer Statistics: A Brief Assessment from Different Populations in India. *Oral Health Dent Manag.* 2013; 12 (3): 132-7.
4. Rooban T, Elizabeth J, Umadevi K R, Ranganathan K. Sociodemographic correlates of male chewable smokeless tobacco users in India: A preliminary report of analysis of national family health survey, 2005-2006. *Indian J Cancer.* 2010; 47 (1): 91-100.
5. Gupta B. Burden of smoked and smokeless tobacco consumption in India-results from the global adult tobacco survey India (GATS-India; 2009-2010). *Asian Pac J Cancer Prev.* 2013; 14: 3325-9.
6. World Health Organisation. National cancer control programmes, policies and guidelines. 2nd ed. Geneva: The organisation: 2002.
7. Elango JK, Sundaram KR, Gangadharan P, Subash P, Peter S, Pulayath C, *et al.* Factors affecting oral cancer awareness in high risk population in india. *Asian Pac J Cancer Pre.* 2009; 10: 627-30.
8. Panzarella V, Pizzo G, Calvino F, Compilato D, Colella G, Campisi G. Diagnostic delay in oral squamous cell carcinoma : the role of cognitive and psychological variables. *Int J Oral Sci.* 2014; 6(1): 39-45.
9. Petersen PE. The world oral health report 2003: continuous improvement of oral health in the 21st century-the approach of the WHO global oral health programme. *Community Dent Oral Epidemiol.* 2003; 31(1): 3-24.
10. Ravikumar BP. Kuppusamy's socioeconomic modified scale - a revision of economic parameters for 2012. *Int J Res Devel Health.* 2013; 1: 2-4
11. Agrawal M, Pandey S, Jain S, Maitin S. Oral cancer awareness of the general public in Gorakhpur city, India. *Asian Pacific J Cancer Prev.* 2013; 13(10):5195-99.
12. Llewellyn CD, Johnson NW, Warnakulasuriya S. Factors associated with delay in presentation among young patients with oral cancer. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod.* 2004; 97(6): 707-13.
13. Kumar S, Heller RF, Pandey U, Tewari V, Bala N, Oanh KT. Delay in presentation of oral cancer: a multifactor analytical study. *Natl Med J India.* 2001; 14(1):13-17.
14. Guneri P, Cankaya H, Yavuzer A, Guneri EA, Erison L, Ozkul D, *et al.* Primary oral cancer in a Turkish population sample: association with sociodemographic features, smoking, alcohol, diet and dentition. *Oral Oncol.* 2005; 41(10):1005–12.
15. Al-Maweri SA, Addas A, Tarakji B, Abbas A, Al-Shamiri HM, Alaizari NA, *et al.*, Public awareness and knowledge of oral cancer in yemen. *Asian Pac J Cancer Pre.* 2014; 15: 10861-5.