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ASSESSMENT OF AWARENESS AND KNOWLEDGE ABOUT ORAL CANCER AMONG DENTAL PATIENTS IN BENGALURU.

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Abstract:

Objective - Oral cancer is increasing at an alarming rate worldwide and is associated with heightened morbidity and mortality rates. Awareness regarding the signs and symptoms followed by early detection is the key for reducing the same. The present study was taken up to assess the awareness and knowledge regarding oral cancer among dental patients in Bengaluru (INDIA). **Method** - Study included 400 dental patients who visited the outpatient department of the institution. A questionnaire, adopted and modified from HOCKS scale (mHOCKS), was used to assess the awareness regarding risk factors, knowledge regarding symptoms and signs of oral cancer and general beliefs. **Results** -The total percentage scores obtained for awareness regarding risk factors, knowledge regarding symptoms and signs of oral cancer and general beliefs of oral cancer were 74.9%, 58.6% and 92.2% respectively. Irrespective of the age and gender, most of the subjects believed that it is easy to treat oral cancer, if detected early. Overall, the score of awareness and knowledge regarding oral cancer in the high-risk population of Bengaluru was, fairly good (75.23%). **Conclusion** - Although, the study group was having a sound knowledge regarding risk factors, unfortunately knowledge regarding the signs and symptoms of oral cancer was considerably lower. This is especially important for the clinicians, various governmental and non-governmental organisations in providing specific goals, to concentrate on improving public knowledge about features of oral cancer.

INTRODUCTION

Oral cancer contributes approximately 2% of all new cancers diagnosed world-wide.¹ Incidence of oral cancer is rising, globally

especially in developing countries. In India, it ranks number one in terms of incidence among men and third among women.²

Majority of oral cancers have been associated with avoidable aetiological factors like tobacco and alcohol consumption and observed to arise from long-standing premalignant lesions, especially in high incidence areas.³

Currently, 28.6% of the Indians are habituated to tobacco products (42.4% of males and 14.2% of females). It is an alarming fact that Indian population is more inclined towards the use of smokeless tobacco (21.4% of adults) than smoking tobacco (10.7% of adults) with Khaini chewing practised by 11% of tobacco chewers while Beedi smoking predominates among smokers. A male preponderance is noted in either case (29.6% of men versus 12.8% of women with habit of chewing smokeless tobacco and 19.0% of men versus 2.0% of women who smoked).⁴

Oral cancer carries a considerable mortality rate, being mainly dependent on the stage of disease at presentation. The five-year survival rate of stage I cancer, irrespective of the sub-sites such as borders of the tongue, floor of the mouth, cheek, and gingiva approximates 80%, while the same for patients with advanced disease (stages III/IV) is approximately 20% only.⁵ Oral cancer results in morbidity by itself as well as due to the treatment rendered to it.

Patients with oral cancer have been noted to present to the clinician at much advanced stages when they may develop features such as ulceration, pain, oral bleeds, swelling, growth and neck lumps where as oral cancer in its early stage tends to remain asymptomatic. Reduction of delay in diagnosis may reduce morbidity and may decrease the mortality rate, stressing the paramount importance that should be assigned for early detection of oral cancer.

Oral physician plays a key role in patient education and early detection of oral cancer, principally among patients visiting dental OPD.

Systematic oral mucosal screening, especially of high risk groups, provides an opportunity for the oral clinicians to enhance patient awareness about early recognition of oral cancer.¹

Lack of awareness and knowledge regarding the risk factors, signs and symptoms of oral cancer among the Indian masses may pose a great challenge for the clinicians as well as policy makers to control the growing burden of oral cancer on the society.

Further, assessing the level of awareness of oral cancer can be utilized by various Government and non-government organizations for planning public health policies and adopting better strategic measures to campaign about risk factors, clinical presentation and effects of oral cancer. Baseline information collected from various population based studies regarding awareness of oral cancer and its signs and symptoms can serve as stepping stones for future larger sample in nationwide studies.

Several scales have been devised to address this and Humphris Oral Cancer Knowledge Scale (HOCKS) stands out as a reliable and validated questionnaire to assess oral cancer knowledge and awareness in various populations.^{6,7}

Paucity exists regarding literature on knowledge and awareness of oral cancer and its risk factors, among the semi-urban population of Bengaluru. Therefore, the present study was attempted to assess awareness regarding risk factors, knowledge regarding symptoms and signs and general beliefs regarding oral cancer in the dental patients.

Material and methods

This study was conducted over a period of 2 months from August 2016 to September 2016 in Government Dental College and Research Institute, Bengaluru (India); after obtaining clearance from the institutional ethical committee, on patients aged above 18years,

visiting the OPD. Patients who had met with maxillofacial trauma or who were mentally disadvantaged were excluded.

Patients were explained about the details of the study and the questionnaire in their known local language and a written informed consent was obtained. The participants were asked to complete the questionnaires in the OPD waiting area. Participants with no formal education were interviewed face to face by a trained and

calibrated investigator. The time taken to complete the questionnaire was about 8 minutes. Questions in this questionnaire were adopted from Humphris Oral Cancer Knowledge Scale (HOCKS) which is a reliable (KR-20 reliability coefficient 0.76) and validated dichotomous inventory that explores respondent’s knowledge of risk factors and awareness regarding signs and symptoms of oral cancer (**Chart 1**).⁶

Chart 1- Modified Humphris Oral Cancer Knowledge Scale (mHOCKS)

A) AWARENESS REGARDING RISK FACTORS	RESPONSE	
• A1: are aged over 50 years old	YES	NO
• A2: smoke tobacco	YES	NO
• A3: chew tobacco	YES	NO
• A4: drink alcohol heavily	YES	NO
B) KNOWLEDGE REGARDING SYMPTOMS OF ORAL CANCER		
• B1: a white patch in your mouth	YES	NO
• B2: an ulcer that does not heal	YES	NO
• B3: a red patch in the mouth	YES	NO
• B4: painless ulcer	YES	NO
• B5: a yellow patch in the mouth	YES	NO
C) GENERAL BELIEFS		
• C1: cancer affects the tongue only	YES	NO
• C2: if your dentist finds a mouth cancer early then it is easy to treat	YES	NO
• C3: mouth cancer does not occur inside the cheek	YES	NO

The questionnaire consisted of 12 relevant, close-ended questions which were selected to suit the Indian population. The reliability, validity, and acceptability of the modified questionnaire were ascertained by conducting a pilot study. Each question answered correctly received a score of 2 and each wrong answer received a score of 1, thus making a maximum score of 24 per person. The questions were divided into 3 sections- A (Awareness of risk factors), B (Knowledge regarding symptoms and signs of oral cancer) and C (General beliefs regarding oral cancer).

Out of the obtained questionnaires from 439 people, 39 incomplete questionnaires were excluded, thereby, summing up the total

study group to 400 patients. Obtained data was subjected to statistical analysis using Mean, Standard Deviation and Oneway ANOVA.

Results

The study comprised of questionnaires obtained from a total of 400 subjects. A near equal distribution of gender was observed with 55.3% of males and 44.8% of females. Age wise distribution revealed that 47.5% of the subjects were less than 30 years, 38.8% were between 30-50 years and 13.8% were above 50 years of age. Out of 97.7% literates (2.3% were illiterate), 41.5% were having graduate degree. Sixty six (16.5%) were habituated to alcohol and tobacco use, with a male preponderance (61 versus 5). Most of the

habitual were between 31 to 50 years of age (n= 27, 40.9%) and were non-graduates (n=41, 62.12%). Table 1 shows patient characteristics.

Table 1- Socio-demographic characteristics of the study population

Socio-demographic profile	Frequency(n)	Percentage
Gender		
Male	221	55.3
Female	179	44.8
Age group (years)		
<30	190	47.5
31 to 50	155	38.8
51 and above	55	13.8
Education		
Having Bachelor degree (Graduates)	166	41.5
No Bachelor degree (Non- Graduates)	234	58.5
Deleterious Habit		
Habitué	66	16.5
Non-Habitues	334	83.5

Respondent's level of knowledge and awareness of risk factors, signs, symptoms, and general beliefs regarding oral cancer were assessed and scores treated statistically in terms of mean, SD and comparative analysis (as a function of gender, education and habit).

The overall knowledge and awareness score was 75.23% for the present study population. Percentage scores obtained for awareness regarding risk factors, knowledge regarding symptoms and signs of oral cancer and general beliefs of oral cancer were 74.9%, 58.6% and 92.2% respectively (Table 2).

Table2- Overall percentage distribution of knowledge and awareness regarding risk factors, sign and symptoms and general beliefs in the population

Assessment of	Percentage
Awareness regarding risk factors (A score)	74.9%
Knowledge regarding symptoms and signs of oral cancer (B score)	58.6%
General beliefs (C score)	92.2%

Gender and age of participants did not have any significant bearing on mean scores of knowledge and awareness regarding risk factors, sign and symptoms and general beliefs

of oral cancer ($p>.05$) (Figure 1 and Figure 2). Irrespective of the age, most of the study subjects believed that it is easy to treat oral cancer, if it is detected early by the dentist.

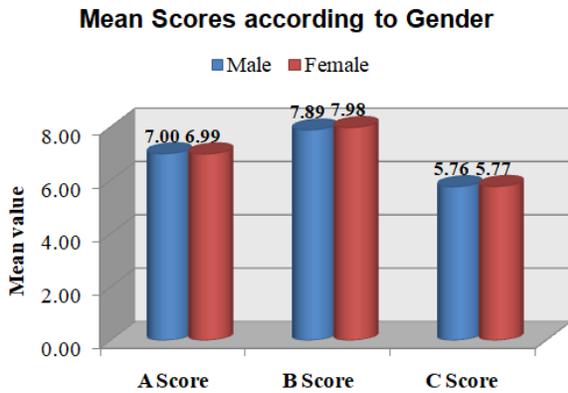


Figure 1- Mean value of general awareness, knowledge of symptoms and risk factors of oral cancer among males and females

The mean score (out of a maximum score of 8) of knowledge of risk factors for oral cancer among patients with bachelor degree (Graduates) was 6.98 (SD 1.107) compared to 7.01 (SD 0.961) for non-graduates. Patients with bachelor degree showed a significant higher mean score of awareness regarding signs and symptoms of oral cancer than the non-graduates (8.12 ± 1.114 out of maximum scores of 10, $p=.004$) and shared an equal knowledge regarding general beliefs of oral cancer ($5.77 \pm .477$ out of maximum scores of 6) (Figure 3).

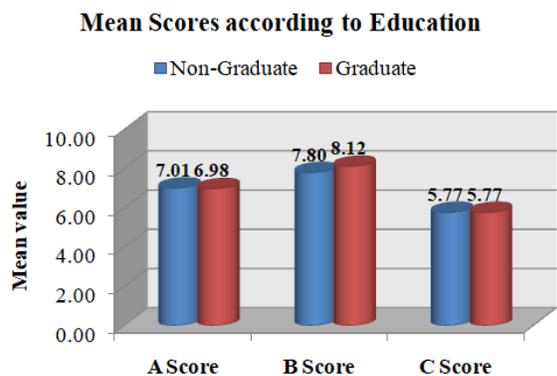


Figure 3- Mean value of general awareness, knowledge of symptoms and risk factors of oral cancer across different education groups

Although, the knowledge of risk factors of oral cancer remained high among

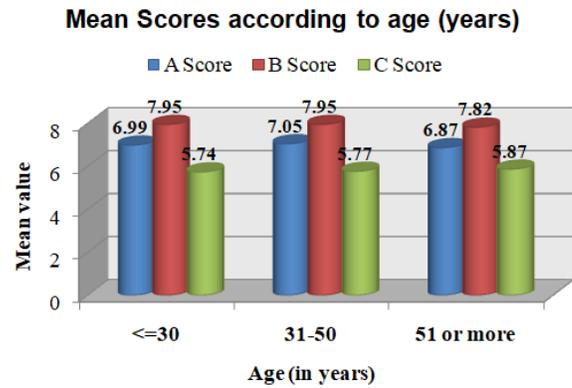


Figure 2- Mean value of general awareness, knowledge of symptoms and risk factors of oral cancer across different age groups

patients with habits of tobacco and alcohol (mean score = 7.03 ± 0.935), their awareness about signs, symptoms and general beliefs regarding oral cancer was comparatively less than those without any habit (Figure 4).

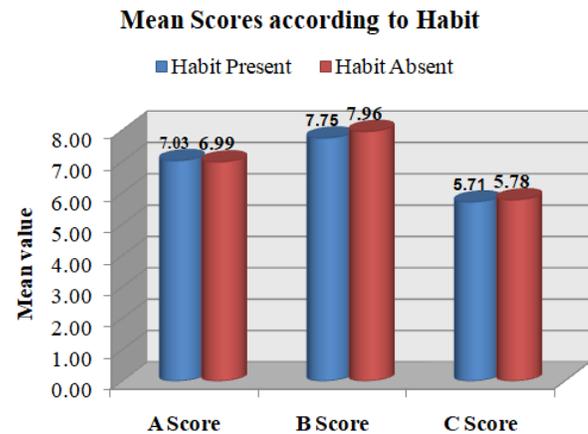


Figure 4- Mean value of general awareness, knowledge of symptoms and risk factors of oral cancer across habitues and non-habitues

Majority of the study group were aware regarding the role of smoking (84.0%), chewing tobacco (87.3%), and heavy alcohol use (70.3%) in causation of oral cancer. However, only 58.3% participants were aware regarding the non- association of age and oral cancer.

A relatively low overall percentage score (58.6) was obtained regarding the knowledge of sign/symptoms- 56.8% and 72.3% of the participants were having knowledge regarding the appearance of intraoral cancer as white and red patch respectively. A misconception of yellow patch as sign of oral cancer was prevailing among

the majority of the participants and only 40.3% gave correct answer regarding this.

A very strong correct opinion regarding the early treatment of cancer, if diagnosed early was obtained (93.3%). Majority of the patients were aware that oral cancer could affect multiple sites and not confined only to tongue and inside the cheek region (Table 3).

Table 3- Mean knowledge scores, SD and percentage of correct responses for individual questions

Sr. No.	Variable	Mean	SD	% of correct answers
I	A- Awareness regarding risk factors			
	A1- Are aged over 50 years old	1.58	.494	58.3
	A2- Smoke tobacco	1.84	.367	84.0
	A3- Chew tobacco	1.87	.334	87.3
	A4- Drink alcohol heavily	1.70	.458	70.3
II	B- Knowledge of signs/ symptoms			
	B1- White patch in mouth	1.57	.496	56.8
	B2 - Ulcer that does not heal	1.68	.468	67.8
	B3- Red patch in mouth	1.72	.448	72.3
	B4- Painless ulcer	1.56	.497	56.0
	B5- Yellow patch in mouth	1.40	.491	40.3
III	C- General beliefs			
	C1- Cancer effects the tongue only	1.97	.184	96.5
	C2- Easy to treat oral cancer if dentist detect it at early stage	1.93	.251	93.3
	C3- Mouth cancer does not occur inside the cheek	1.87	.337	87.0

Discussion

The incidence of oral cancer in India is escalating day by day. Unfortunately, most oral cancers, even in developed countries, are detected in late stages, and delay in diagnosis and treatment has been attributed, at least in part, to the lack of public knowledge and awareness about symptoms, signs and risk factors of oral cancer.⁸ Therefore, this study was planned to assess the levels of knowledge and awareness among urban and semi-urban population of Bengaluru visiting the dental OPD of the Government institution, using modified Humphris Oral Cancer Knowledge Scale

(mHOCKS) which is a reliable, validated and widely used questionnaire.

Individuals aged from 18 years to 75 years (mean age of 34.77 years) participated in the study, with majority of individuals less than 30 years of age (47.5%).

Only 16.5% (n= 66/400) revealed their practice of deleterious habits of tobacco and alcohol, similar to the findings of other studies.⁸⁻¹²

The present study sample can be considered to represent both urban and rural population as the setup is a major referral hospital in the state. The present study found fairly good levels of knowledge and awareness of

oral cancer (75.23%) among the study population, consistent with findings in other studies conducted across India and globally.^{3,10-12} However, some studies conducted in India and various parts of the world have reported lower scores.^{8,9,13,14} Statistically significant score of knowledge and awareness of oral cancer among the present study population may be related to their increased access to the widely available mass media programs regarding oral cancer.

No statistically significant difference of scores of knowledge and awareness of oral cancer was noted among males and females. These results differ from findings of Reddy et al where the awareness among females was more.¹³ Elderly age group showed more awareness, as compared to the younger individual's and similar results were found by Warnakulasuriya et al.⁹

Our study results showed a direct correlation of level of education with awareness of signs and symptoms of oral cancer. Participants possessing bachelor degree or higher (bachelor degree holders- 41.5% versus non-bachelor degree holders- 58.5%) displayed a greater level of knowledge about oral cancer. This finding is supported by previous studies, which have documented that knowledge is proportional to the educational level of respondents, as higher education exposes a person to oral health education programs through various sources.^{3,8,10,11,15-17}

Despite of the knowledge and awareness of tobacco related harms and the adoption of various policies by Government of India like increasing prices of tobacco and alcohol, banning smoking in public places, and undertaking extensive awareness campaigns, a large number of people continue to indulge in the habit, for causes not yet ascertained.

Most of the study subjects were aware that early detection of oral cancer by the dentist would make it more amenable to treatment, thus

justifying the role of the oral physician to this end. In addition, dentists are in a strong position to motivate their patients on tobacco cessation and alcohol abstinence⁹ and serve a pivotal role in informing the public about risk factors, symptoms and signs of oral cancer. This study was conducted on a semi-urban population, which could be considered as an ideal representation of the actual population's assessment of the knowledge and awareness of oral cancer.

Limitations

The study had certain limitations. We attempted to assess the participant's knowledge by use of close-ended questions, to be answered in 'YES' or 'NO' thus preventing the participant's unbiased expression regarding the same. The present baseline study was primarily a hospital-based survey; however, it revealed some important aspects about public knowledge and awareness regarding oral cancer. Larger sample size studies utilizing questionnaires having open ended questions (which give patients greater freedom of expression) are therefore needed to assess, in greater detail, public knowledge about oral cancer.

Conclusion

Although the level of knowledge and awareness was found to be fairly good, keen efforts targeting the high risk population are required from various government and non-government organizations to carry out intensive public health education program for recognition of risk factors and early warning signs and symptoms that would facilitate early detection of oral cancer. In addition, efforts are required to inculcate a positive attitude towards oral health care and motivate the habitués to quit deleterious habits. These proposed strategies constitute the need of the hour and can have a major impact on reducing mortality associated with this disease.

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