

Research Article**Awareness about Effects of Tobacco on Oral and General Health: A Questionnaire Study**Anuradha Pai¹, Anjana Arora^{2*}, Sujatha Dyasanoor³¹Professor and Head of the Department, Department of Oral Medicine and Radiology, The Oxford Dental College, Bangalore, India²Post Graduate Student, Department of Oral Medicine and Radiology, The Oxford Dental College, Bangalore, India³Professor, Department of Oral Medicine and Radiology, The Oxford Dental College, Bangalore, India***Corresponding author**

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Abstract: The aim and objectives of the study was to assess awareness of effects of tobacco on oral health, general health and oral cancer in routine dental practice and to assess awareness of effects of tobacco among smokers and smokeless tobacco users. (iii) To assess awareness of effects of tobacco among current and past users of tobacco. A self-administered questionnaire was used to collect information from 250 outpatients attending the department of Oral Medicine and Radiology, Oxford Dental College and Hospital, Bangalore, India with present or past history of smokeless or smoking form of tobacco. The questionnaire was divided into four parts demographic data, habits, awareness and practice of mouth self-examination. Data was analysed using Chi-squared (χ^2) test. Out of 250 patients, nearly 112 people were found to be aware of effects of tobacco on oral and general health. Among smokers and smokeless users, smokers were found to be more aware of fact that smoking can cause mouth cancer, heart disease and lung disease as compared to smokeless users with significant p-value of 0.034, 0.014 and 0.039 respectively. Among current and past users of tobacco, past users were found to be more aware about various ill-effects of tobacco as compared to current users. However, 83 smokers, 110 smokeless users were found to be unaware of any precancerous changes occurring in mouth due to tobacco with p-value of 0.909 and similar results were also found among 34 past, 159 current users with p-value of 0.378. This survey revealed that the patients who were smokers and past users of tobacco were found to be more aware of effects of tobacco on oral and general health as compared to smokeless and current users. However, awareness about pre-cancer was relatively low among all the groups of patients.**Keywords:** Awareness, Tobacco, Oral health, Smoking, Smokeless, Cancer

INTRODUCTION

Oral cancer incidence is high in many areas of the world and majority occur in developing countries of the South & South East Asian region including India [1]. Tobacco usage is one of the major cause contributing to development of oral precancerous and cancerous lesions [2]. Tobacco is used in variety of smokeless and smoking forms like gutka, pan, khaini, betel quid, cigarette, beedi all over India.

Oral cancer is almost always preceded by visible precancerous changes in the oral mucosa which if detected early can effectively treat the disease in its initial stages, however, a very high number of oral cancers are still detected in the last stage, when the treatment is complex, expensive, and with poor results. Moreover, smoking has been established as a risk factor for death from several systemic diseases, including lung cancer, respiratory diseases, and cardiovascular diseases [3].

It is evident that the most effective measure to prevent the morbidity and mortality of oral cancer is to reduce the appearance of new cases which can be done by increasing awareness of effects of tobacco on health [4]. As members of health profession, dentists have a duty to promote oral and general health and healthy lifestyles among their patients, by raising their awareness about the harmful effects of tobacco on health and guiding them in conquering tobacco addiction [5]. Apart from the dentists' level of knowledge, little is known about the awareness of oral cancer among the population. Quite a few studies discuss the fact that one of the main reasons for the late diagnosis is the general lack of the public's knowledge about signs and symptoms of oral cancer and its risk factors [6]. Therefore, present study was carried out to assess awareness of effects of tobacco on oral health, general health and oral cancer in patients with present

or past history of smokeless or smoking form of tobacco usage in routine dental practice.

MATERIALS AND METHODS

A questionnaire type survey was carried out among outpatients attending the Department of Oral Medicine and Radiology, Oxford Dental College and Hospital, Bangalore, India. Subjects (n=250) were randomly chosen with present or past history of smokeless or smoking form of tobacco usage. The questionnaire was prepared by the investigator and was given to patients to fill after routine dental check-up. The questionnaire consisted of relevant questions divided under four sections

- Demographic information,
- Habits,
- Awareness of oral cancer, pre-cancer and ill effects of tobacco on general health
- Practice of mouth self-examination.

Awareness section included 8 questions for which response was recorded as yes/no/don't know and practice of mouth self-examination section included 2 questions.

Questions included under section 3 of questionnaire "Awareness of oral cancer, pre-cancer and ill effects of tobacco on general health" -

- Q1. Smokeless form can cause mouth cancer?
- Q2. Smoking form can cause mouth cancer?
- Q3. Is smokeless or smoking form is linked with any dental problems?

- Q4. Are you aware of any precancerous changes in mouth ?
- Q5. Can smoking cause heart disease?
- Q6. Can smoking cause lung cancer?
- Q7. Early detection of mouth cancer can improve chances of care?
- Q8. Changes in lifestyle can reduce the risk of development of cancer?

Questions included under section 4 of questionnaire "Practice of mouth self-examination" -

- Q1. Have you ever – practiced oral self-examination?
- Q2. If 'Yes' what you noticed/experienced inside your Mouth ?

Data was analysed using Chi-squared (χ^2) test.

RESULTS

Total sample size of 250 subjects were categorized on basis of gender, age group, level of education, tobacco usage including its form, status, frequency and source of obtaining information regarding oral precancerous, cancerous and general health effects.

Out of 250 subjects, 193(77%) male and 57 (23%) females participated in study. Based on age, 82(33%) subjects were less than 30 years old, 92(37%) subjects were 30-40 years old and 76(30%) subjects were more than 40 years old. Based on education, 44 (17%) subjects were illiterate, 28(11%) subjects were educated upto 5th standard, 54 (22%) subjects were educated upto 10th standard and 124 were educated upto advanced level.

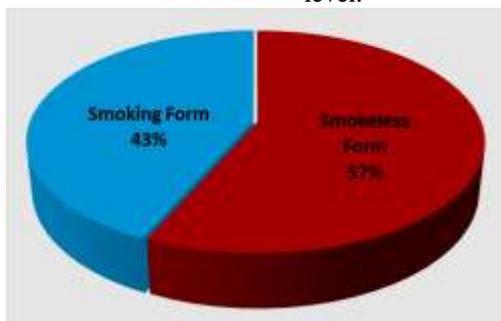


Fig. 1: Sample distribution based on form of tobacco use

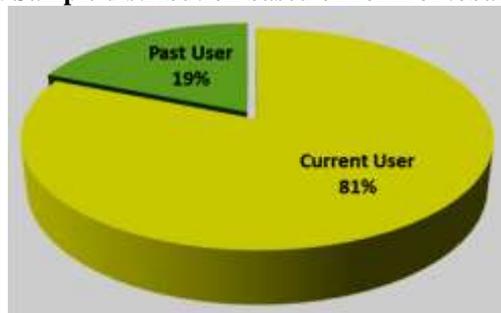


Fig. 2: Sample distribution based on user status

Out of 250 subjects, 142 (57%) subjects were using smokeless and 108 (43%) subjects smoking form of

tobacco (Fig. 1). Based on user status, 203 (81%) subjects were current users and 47 (19%) were past

users (Fig. 2). Frequency of intake/day was upto 5 times for 104 (42%) subjects, more than 5 times for 87 (35%) subjects and 59 (23%) subjects used to occasionally take tobacco in any form.

There were 8 questions under section 3 of questionnaire related to awareness of oral cancer, pre-cancer and ill effects of tobacco on general health.

Response was recorded as yes/no/don't know. For statistical convenience, subjects with response 'don't know' were included with subjects 'no' as response. Data was analyzed question wise (Fig. 3). Response received was found to be nearly equally distributed as 'yes' or 'no' except for question no. 4 (Q4) for which response was 'no' by 77% of subjects and 'yes' by 23% of subjects.

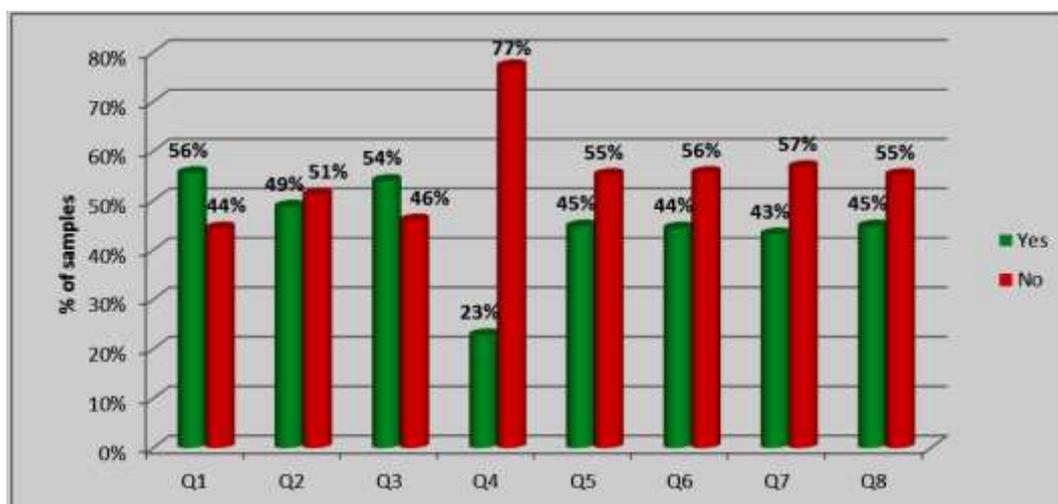


Fig. 3: Response received question wise.

Data was also analyzed for association between response received for each question with tobacco form as well as with status of usage. Statistically significant association was found between Q2, Q5, Q6 and

different tobacco form (smokeless/smoking). P values were 0.034, 0.014, 0.039 for Q2, Q5 and Q6 respectively (Table 1).

Table 1: Response received for each question from users of different form of tobacco

Question		Smokeless Form (N=142)		Smoking Form (N=108)		χ^2	P-Value
		n	%	n	%		
Q1. Smokeless form can cause mouth cancer	Yes	77	54%	62	57%	0.252	0.616
	No	65	46%	46	43%		
Q2. Smoking form can cause mouth cancer	Yes	61	43%	61	56%	4.490	0.034*
	No	81	57%	47	44%		
Q3. Is smokeless or smoking form is linked with any dental problems	Yes	76	54%	59	55%	0.030	0.862
	No	66	46%	49	45%		
Q4. Are you aware of any precancerous changes in mouth	Yes	32	23%	25	23%	0.013	0.909
	No	110	77%	83	77%		
Q5. Can smoking cause heart disease	Yes	54	38%	58	54%	6.095	0.014*
	No	88	62%	50	46%		
Q6. Can smoking cause lung cancer	Yes	55	39%	56	52%	4.277	0.039*
	No	87	61%	52	48%		
Q7. Early detection of mouth cancer can improve chances of care	Yes	56	39%	52	48%	1.897	0.168
	No	86	61%	56	52%		
Q8. Changes in lifestyle can reduce the risk of development of cancer	Yes	58	41%	54	50%	2.079	0.149
	No	84	59%	54	50%		

*denotes significant association

Statistically significant association was also observed between status of users (current/past) and all seven questions except Q4 with P value 0.378 (Table 2).

There were 2 questions under section 4 of questionnaire related to practice of mouth self-examination. Out of total 250 subjects, 195 (78%) never practiced mouth self-examination and remaining 55 (22%) had noticed only stains or debris on their teeth.

Table 2: Response received for each question from the status of users

Question		Current User (N=203)		Past User (N=47)		χ^2	P-Value
		n	%	n	%		
Q1. Smokeless form can cause mouth cancer	Yes	105	52%	35	74%	8.347	0.004*
	No	99	49%	12	26%		
Q2. Smoking form can cause mouth cancer	Yes	90	44%	32	68%	8.616	0.003*
	No	113	56%	15	32%		
Q3. Is smokeless or smoking form is linked with any dental problems	Yes	99	49%	36	77%	11.897	0.001*
	No	104	51%	11	23%		
Q4. Are you aware of any precancerous changes in mouth	Yes	44	22%	13	28%	0.777	0.378
	No	159	78%	34	72%		
Q5. Can smoking cause heart disease	Yes	80	39%	32	68%	12.691	<0.001*
	No	123	61%	15	32%		
Q6. Can smoking cause lung cancer	Yes	78	38%	33	70%	15.623	<0.001*
	No	125	62%	14	30%		
Q7. Early detection of mouth cancer can improve chances of care	Yes	74	36%	24	51%	20.031	<0.001*
	No	129	64%	13	28%		
Q8. Changes in lifestyle can reduce the risk of development of cancer	Yes	78	38%	34	72%	17.753	<0.001*
	No	125	62%	13	28%		

*denotes significant association

Subjects were aware about ill-effects of tobacco on oral and general health from various sources, with television and radio (16%) playing major contributory

role as compared to other sources like internet, poster/banner or newspaper (Fig. 4).

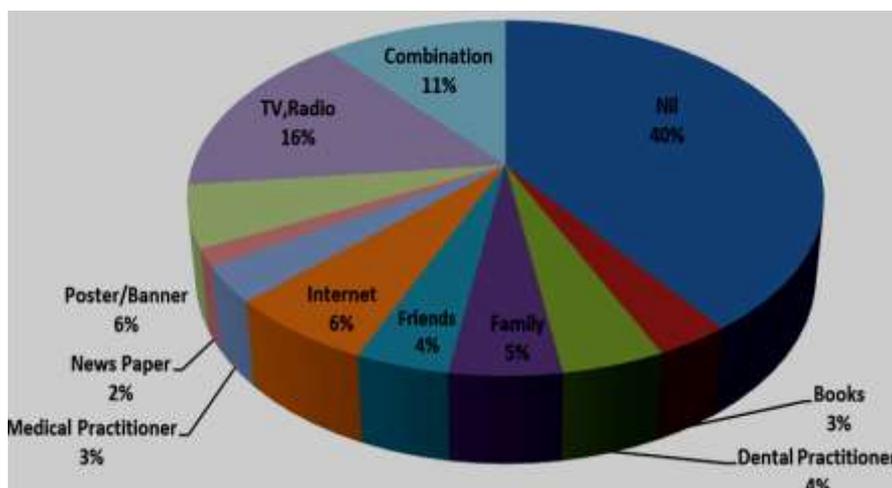


Fig. 4: Source of information

DISCUSSION

Oral cancer refers to cancers affecting the mouth, lip and oral cavity. The two major known risk factors for oral cancer are alcohol and tobacco. The stage at which oral cancer is diagnosed is a major determinant of mortality and morbidity following treatment [2]. Early diagnosis of oral cancer could be aided by opportunistic

screening for tobacco related habits even before its signs and symptoms manifest clinically.

In spite of the efforts made by international health organizations in the field of prevention, a relative increase in the incidence of the oral cancer has been observed in recent decades. It is evident that the most

effective measure to prevent the morbidity and mortality of oral cancer is to reduce the appearance of new cases via primary prevention [4]. This prevention is directed towards changing behavior or lifestyles known to be associated with oral cancer including, tobacco and alcohol [7].

There are only few studies conducted in past to assess dental patient's knowledge and awareness of ill-effects of tobacco on health [1, 6, 8, 9]. Moreover, most of the available studies have focused on either smoking or smokeless form of tobacco leading to oral cancer and on knowledge, attitude of tobacco use among health professionals [4-6, 10]. In contrast to these studies, our study assessed awareness of effects of tobacco not only on oral health but also on general health.

In our study majority of the patients were male (77%), 30-40 years old (37%) with higher education level (50%). This implies that adult males were more common users of tobacco though being well educated. Smoking and smokeless form usage was found to be nearly equal with 81% as current users and 5 intakes/day (42%) as the most common frequency of usage. Only 19% of patients were past users and aware about ill-effects of tobacco. Few reported to quit the habit because of self-experience of dental problems like teeth staining, caries, periodontal and mucosal problems including ulcer, burning sensation and pain.

Majority of patients acquired knowledge about tobacco related health effects from television and radio (16%) whereas role of other sources like poster/banner (6%), internet (6%), family members (5%), friends and dental practitioner (4%), medical practitioner and books (3%), newspaper (2%) was minimal. So, television and radio are the most effective means of approaching people for creating awareness on tobacco health effects among large mass population.

The association between the response given for 'smoking form can cause mouth cancer', 'can smoking cause heart, lung disease' and the use of different forms of tobacco was found to be statistically significant in the study sample ($P < 0.05$). More no. of people who used smokeless form of tobacco was unaware of the fact that smoking can cause mouth cancer whereas majority of the smokers were aware of this fact. Similar results were obtained in study conducted by S Ahmed *et al.* [11] and contrary to study conducted by Khalaf F. Al-Shammara *et al.* [3].

The association between the response given for 'smokeless form can cause mouth cancer', 'smoking form can cause mouth cancer', 'is smokeless or smoking form is linked with any dental problems', 'can smoking cause heart, lung disease', 'early detection of mouth cancer can improve chances of care', 'changes in lifestyle can reduce the risk of development of cancer'

and status of users was found to be statistically significant ($P < 0.05$). More no. of current users of tobacco were unaware of these facts whereas majority of past users were aware. This awareness was a strong reason for past users which urged them to quit tobacco habits. This was the first study which compared awareness of tobacco ill effects on oral and general health among current and past users.

The association between the response given for 'are you aware of any precancerous changes in mouth due to tobacco' and status of users was found not statistically significant ($p > 0.05$). So, irrespective of being a current (78%) or a past (72%) user of tobacco majority of people were unaware of any precancerous changes like leukoplakia, erythroplakia can occur in mouth due to tobacco as compared to 55% of unaware people in study conducted by A Ariyawardana *et al.* [1].

In our study, out of 250 subjects, 78% patients never practiced mouth self-examination and remaining 55 (22%) had noticed only stains or debris on their teeth. Thus, majority of tobacco users were not paying attention to their oral health and are also not interested to peep inside their oral cavity to look for any precancerous changes. This raises the high need for increasing the awareness among mass populations on effects of tobacco on oral, general health and pre-cancer. A study conducted by K.J. Elango *et al.* showed that awareness of oral cancer and its risk factors after introduction of mouth self-examination program was over 80% [12].

CONCLUSION

This study has shown that tobacco users are generally unaware of effects of tobacco on oral health, general health, oral cancer and pre-cancer. The mass media's role in educating the public and mouth self-examination may be used as an effective tool in improving further public awareness. It is needed to strengthen the awareness on harmful effects of tobacco and also cessation aids among its users which will help them in future to quit the habit, prevent them from developing oral cancer and live a healthy life.

Among the various health professionals, oral physicians have the greatest access to apparently healthy tobacco users in the healthcare system. Even in the absence of tobacco-related diseases in the mouth the oral physician can easily recognize patient's tobacco status. This fact renders them a favourable position in connection with tobacco intervention by counselling them to quit the tobacco habit as much as a part of their job as plaque control and dietary advice.

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