

**AWARENESS ABOUT EFFECTS OF TOBACCO ON ORAL AND GENERAL HEALTH: A CROSS SECTIONAL QUESTIONNAIRE BASED STUDY CONDUCTED IN OUTPATIENT DEPARTMENT OF A DENTAL COLLEGE OF CENTRAL INDIA.**

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**ABSTRACT: Aims and objectives:** 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. **Materials and methods:-**A self-administered questionnaire was used to collect information from 200 outpatients attending the department of Oral Medicine and Radiology, Peoples Dental Academy and Hospital, Bhopal, 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 analyzed using Chi-squared ( $\chi^2$ ) test. **Results:** In our study majority of the patients were male 131(65.5%%), 35-60 years old (60%) with higher education level (38%). This implies that adult males were more common users of tobacco though being well educated. Smoking and smokeless form usage was found to be 66% & 34% with 89% as current users and more than 5 intakes /day (61%) as the most common frequency of usage. Only 11% of patients were past users and aware about ill-effects of tobacco. Television and radio followed by the news paper 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 ( $P<0.05$ ). In our study, out of 200 subjects, 84% patients never practiced mouth self-examination and remaining 16 % had noticed only stains or debris on their teeth.

**KEYWORDS:** Awareness, Tobacco, smoking.

**INTRODUCTION**

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

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.<sup>1</sup>

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. 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. 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. 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.<sup>2</sup>

Southeast Asia especially India has one of the highest age adjusted incidence rates of oral cancer and upper aerodigestive tract cancers in the world. According to World Health Organization the prevalence of tobacco habits in India is high with 34% using bidis, 31% Cigarettes, 19% chewing tobacco, 9% hookah and 7% other forms respectively. The cancer patients' aid Association of India revealed prevalence of cigarette use as 20%, bidis 40% and chewable tobacco 40%. It has huge physical, mental, social and economic implications for our country. Already 1 in 5 of all adult male deaths and 1 in 20 of all adult female deaths at ages 30-69 are due to smoking and India will soon have 1 million smoking deaths a year. By 2020 it is predicted to account for 13% of all deaths in India. The direct medical costs of treating smoking tobacco attributable diseases in India have been estimated to exceed \$900 million in 2004. Families of smokers on average spend 3 times more on treatment of illness episodes compared with non-smokers. These families also reported 8 times increase in work days lost. Moreover, the use of tobacco has been associated with impoverishment through borrowing and distress selling of assets due to costs of hospitalization. Preventive strategies can play a pivotal role in reducing these implications.<sup>4</sup>

The scope of preventive dentistry is constantly expanding and can be as far reaching as a professional's imagination, sense of responsibility and efforts. Dentists & Oral physicians have been recognized as "ideally positioned to counsel against the use of cigarettes and smokeless tobacco products". They are one of the health professionals more frequently in contact with the general population and are first to see the effects of tobacco in mouth.<sup>4</sup>

They are as effective in providing smoking cessation counseling as any other health care professional. The evidence is clear that smokers who receive assistance from health care workers are more successful at quitting than those without any support.<sup>4</sup>

Most of the studies in the past have focused on dentists' or dental student's knowledge, attitude and practices regarding the various aspects of smoking and smoking cessation activities. Very few studies have focused on patient's knowledge, awareness and perceptions regarding same. Those available stress more on oral cancer rather than comprehensively covering all the Aspects related to oral health and general health. There is a paucity of patient centered studies in the Indian scenario. Hence, the aim of the present study was to assess dental patients' knowledge about effects of smoking, their perceptions regarding the role of dentists in smoking cessation interventions and willingness of smokers to quit smoking following dentist's advice.

Ariyawardana A, Vithanaarachchi N conducted a study in 2012<sup>5</sup> on Awareness of oral cancer and precancer among patients attending a hospital in Sri Lanka and found that Ninety five percent of the respondents were aware of the possibility of occurrence of cancer in the mouth while only 44.9% (n=184) were aware about precancer. Of the 390 individuals who were aware of the existence of oral cancer, 80.7% were knowledgeable about the causal relationship between betel chewing habit and oral cancer. Forty-seven and 17 percent were aware of links with tobacco smoking and alcohol consumption, respectively.

Oluwatunmise A, Scott ES, Tim N conducted a cross sectional study in 2012<sup>6</sup> on Patients' perceptions of oral cancer screening in dental practice and found that Twenty percent of respondents had never heard of oral cancer; 77% knew little or nothing about it and 72% did not know that their Dentist routinely screens for oral cancer. Overall, attitudes to screening were positive. Ninety two percent of respondents would like their Dentist to tell them if they were being screened for signs of oral cancer and 97% would like help from their Dentists to reduce their risk.

Al-Shammara KF, Moussab MA, Al-Ansaric JM, Al-Duwairya YS, Honkala EJ conducted a study in 2006<sup>7</sup> on Dental patient awareness of smoking effects on oral health: Comparison of smokers and nonsmokers and found out that 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. Lopez-Jornet P, Camacho-Alonso F, F Minano FM conducted a pilot study in 2007<sup>8</sup> on Knowledge and attitude towards risk factors in oral cancer held by dental hygienists in the Autonomous Community of Murcia (Spain) found that only few people out of the sample know about the risk of oral cancer. Poonam sood et al conducted a study in 2008<sup>9</sup> to assess the knowledge of patients about the consequences of smoking on the general and oral health, to analyze the patient's perceptions about the role of dentists in smoking prevention, counseling and cessation and to analyze the willingness of smokers to quit smoking following dentist's advice. She found that The patients had good knowledge about the effects of smoking on general and oral health. Patients had a positive perception about the role of dentists in smoking cessation activities. Smokers exhibited a willingness to quit if suggested by the dentist.

**Aim and Objectives:** The aim and objectives of the study was to assess awareness of effects of tobacco on oral health, general health and oral cancer in general population and to assess awareness of effects of tobacco among smokers and smokeless tobacco users.

**Materials and methods-** A questionnaire type survey was carried out among outpatients attending the Department of Oral Medicine and Radiology, Peoples Dental Academy, Bhopal, India. Subjects 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- ( **Table-1**)

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

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.

**Study Type**-Cross Sectional Study.

**Sample Size**-200 OPD patients

**Inclusion criteria**:- Randomly chosen patients with present or past history of smokeless or smoking form of tobacco usage.

**Exclusion criteria**:- Patients with no history of taking any form whether smokeless or smoked form of tobacco recently or in past years.

All the 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.

**Results:**

Sample of 200 subjects were categorized on basis of gender, age group, level of education, tobacco usage including its form, status, frequency and source of obtaining information. Statistical tests applied included descriptive analysis of the responses from the questionnaire and chi squared test for comparison of responses.

**Demographic data**

Out of the total 200 samples 142 were of the male patients and 58 were the female patients. Majority of the patients were of age between 35-60 years of age and about 31% of the patients were between 15-35 years of age.( **Fig.1** and **Fig.2**)

**Based on education**

Majority of the patients were educated up to the 10<sup>th</sup> standard that is 42% while 31.5% of the patients were educated up to more than 10<sup>th</sup> standard or advanced level.20% of the patients are educated up to the 5<sup>th</sup> standard. Only 6.5% of the patients were uneducated .( **Fig.3**).65.5% of the patients uses smokeless form of tobacco while 34.5% of the patients uses smoked form of the tobacco. .( **Fig..4**)

**Based on frequency**- Out of the total 200 samples nearly 121 patients consume tobacco more than 5 times per day while about 65 patients consume tobacco up to 5 times per day.14 patients consume tobacco occasionally. (**Fig.5**)

**Based on duration**—Out of the total 200 samples majority(38.5%) of the patients were consuming tobacco since 5 years.27.5% of the patients were consuming tobacco from more than 10 years.21% of the patients were consuming tobacco since more than 5 years and 13% of the patients were consuming tobacco since less than 1 year. (**Fig.6**)

**Source of information**- Majority of the people (74%) get information about the harmful effects of tobacco from the television and radio whereas 13% of the people get information from the news paper.5% of the people get information from the internet and nearly 7% of the people get information from friends and family. (**Fig.7**)

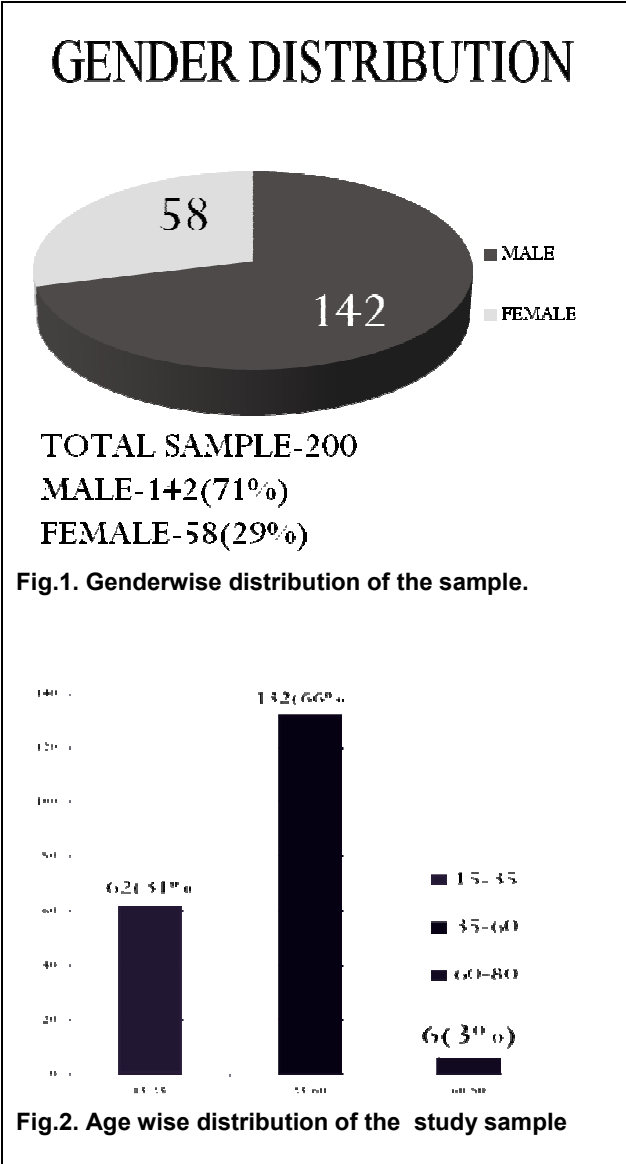


Table. 1. showing that RESPONSE RECEIVED FOR EACH QUESTION FROM USERS OF DIFFERENT FORM OF TOBACCO.

QS NO	QUESTION ASKED	SMOKELESS FORM(N=131)	SMOKED FORM(N=69	PVALUE
Q.1	Smokeless form can cause mouth cancer?	YES-130(99.5%) NO-1(0.5%)	YES-50(72.5%) NO-19(27.5%)	0.000* HS
Q.2	Smoking form can cause mouth cancer?	YES-129(98.5%) NO-2(1.5%)	YES-68(98.5%) NO-1(1.5%)	0.364
Q.3	Is smokeless/smoking linked with any dental problem?	YES-128(97.8%) NO-3(2.2%)	YES-60(86.9%) NO-9(13.04%)	0.364
Q.4	Are you aware of any precancerous changes in mouth?	YES-5(3.81%) NO-126(96.19%)	YES-3(4.35%) NO-66(96.65%)	0.799

QS. NO	QUESTION ASKED	SMOKELESS FORM(N=131)	SMOKED FORM(N=69)	PVALUE
Q.5	Can smoking cause heart disease?	YES-128(97.7%) NO-3(2.3%)	YES-67(97.1%) NO-2(2.89%)	0.003*HS
Q.6	Can smoking cause lung cancer?	YES-130(99.2%) NO-1(0.77%)	YES-65(94.20%) NO-4(0.05%)	0.004*HS
Q.7	Early detection of mouth cancer can improve chances of care?	YES-126(96.2%) NO-5(3.81%)	YES-68(98.55%) NO-1(1.45%)	0.112
Q.8	Changes in lifestyle can reduce the risk of development of cancer?	YES-127(96.95%) NO-4(3.05%)	YES-65(95.7%) NO-4(5.85)	0.589
Q.9	Have you ever self examined our mouth?	YES-21(16.4%) NO-110(83.96%)	YES-17(24.63%) NO-52(75.36%)	0.422
Q.10	Have you noticed any changes while self examination of our mouth?	YES-13(9.92%) NO-118(90.08%)	YES-9(13.05%) NO-60(86.95%)	0.236

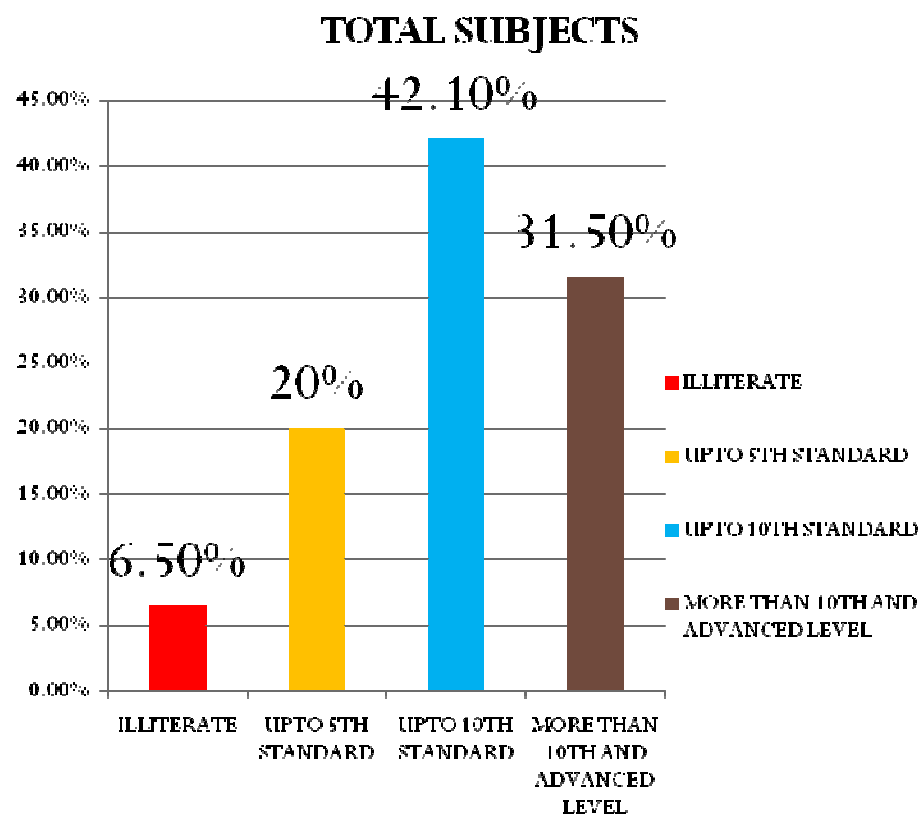


Fig.3. Education level profile of the sample under study.

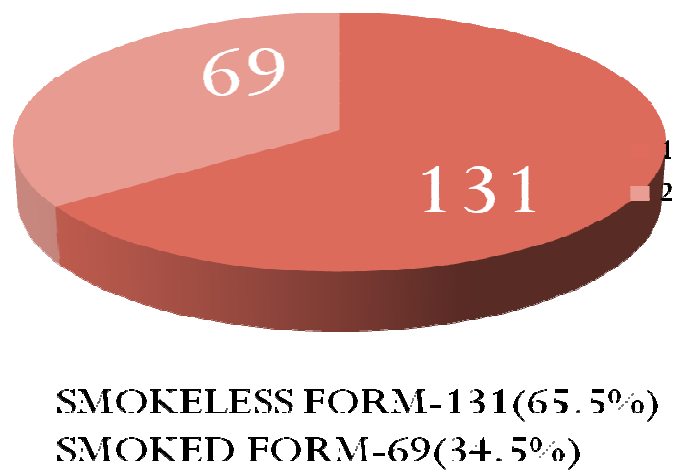


Fig. 4 showing the consumption of smoking and smokeless form of tobacco

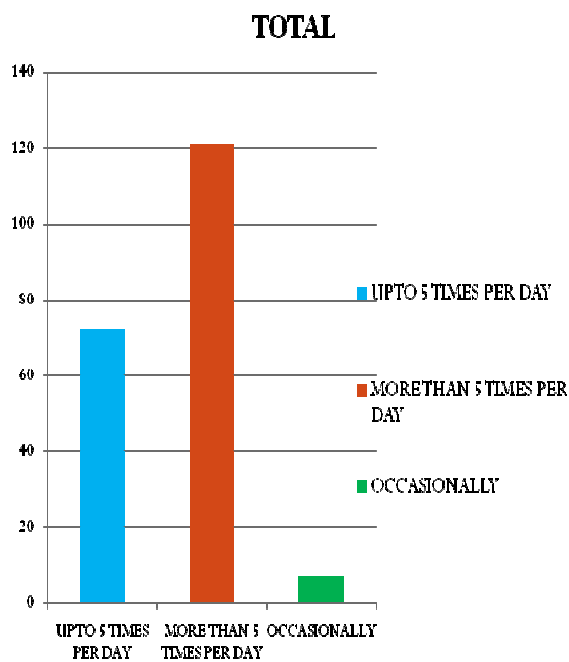


Fig.5. Frequency of consumption per day

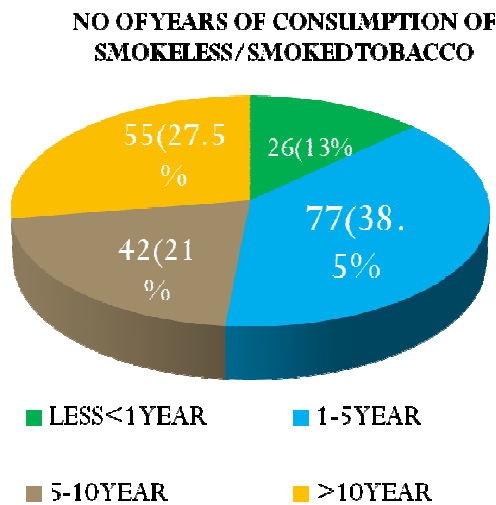


Fig.6. showing the duration of consumption of Tobacco

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. Early diagnosis of oral cancer could be aided by opportunistic screening for

tobacco related habits even before its signs and symptoms manifest clinically.<sup>10</sup>

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. This prevention is directed towards changing behavior or lifestyles known to be associated with oral cancer including, tobacco and alcohol.<sup>9</sup>

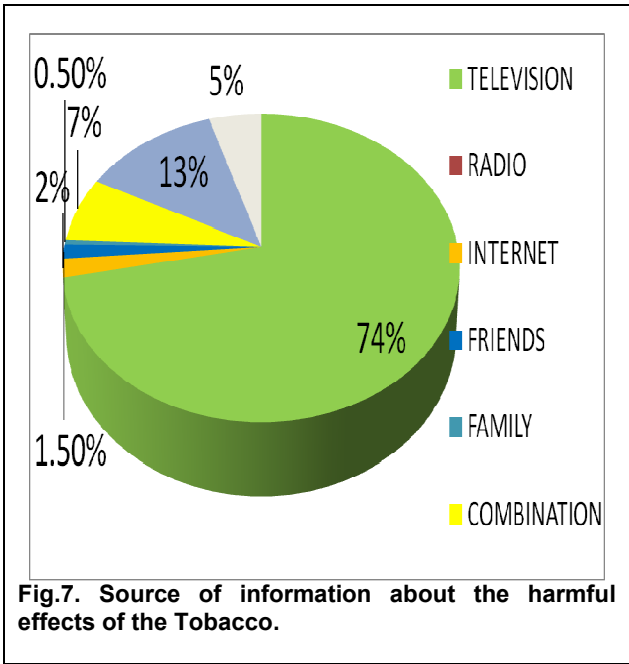
There are only few studies conducted in past to assess dental patient's knowledge and awareness of ill effects of tobacco on health. Moreover, most of the available studies have focused on either smoking or smokeless form of tobacco leading to oral cancer and on knowledge, attitude of tobacco use among health professionals. 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 131(65.5%%), 35-60 years old (60%) with higher education level (38%).

Adult males were more common users of tobacco though being well educated. Smoking and smokeless form usage was found to be 66% & 34% with 89% as current users and more than 5 intakes /day (61%) as the most common frequency of usage. Only 11% of patients were past users and quit the habit because of self-experience of dental problems like teeth staining, periodontal and mucosal problems including ulcer, burning sensation and pain.

Television and radio followed by the news paper are the most effective means of approaching people for creating awareness on tobacco health effects among large mass population. More no. of people who used smokeless form of tobacco were unaware of the fact that smoking can cause mouth cancer. Similar results were obtained in study by S Ahmed *et al* & Khalaf F. Al-Shammaria *et al*.<sup>10</sup>

Current users of tobacco were unaware of ill effects of tobacco. So our study also compared awareness of tobacco ill effects on oral and general health among current and past users. 96% were unaware of any precancerous changes like leukoplakia, erythroplakia, pouch keratosis, oral sub mucous fibrosis as compared to 55% unaware people in study conducted by A Ariyawardana *et al*.<sup>5</sup>

In our study, out of 200 subjects, 84% patients never practiced mouth self-examination. Thus, majority of tobacco users were not paying attention to their oral & general health and are also not aware of any precancerous changes. A study by K.J. Elango *et al*<sup>9</sup> showed that awareness of oral cancer after introduction of mouth self-examination program was over 80%.



**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 favorable position in connection with tobacco intervention by counseling them to quit the tobacco habit as much as a part of their job as plaque control and dietary advice.

References

1. Ariyawardana A, Vithanaarachchi N; Awareness of oral cancer and precancer among patients attending a hospital in Sri Lanka. Asian Pacific J Cancer Prev., 2005; 6(1):58-61.

2. Oluwatunmise A, Scott ES, Tim N; Patients' perceptions of oral cancer screening in dental practice: a cross-sectional study. BMC Oral Health, 2012; 12: 55.

3. Al-Shammara KF, Moussab MA, Al-Ansaric JM, Al-Duwairya YS, Honkala EJ; Dental patient awareness of smoking effects on oral health: Comparison of smokers and nonsmokers. Journal of Dentistry, 2006; 34(3):173-178.

4. Lo'pez-Jornet P, Camacho-Alonso F, F Minano FM; Knowledge and attitude towards risk factors in oral cancer held by dental hygienists in the Autonomous Community of Murcia (Spain): A pilot study. Oral Oncol.,2007; 43(6): 602-606.

5. Priya MH, Bhat SS, Hegde KS; Prevalence, knowledge and attitude of tobacco use among health professionals in Mangalore City, Karnataka. J Oral Health Comm Dent., 2008; 2(2): 19-24.

6. Hertrampf K, Wenz HJ, Koller M, Wiltfang J; Comparing dentists and the public's awareness about oral cancer in a community-based study in Northern Germany. J Craniomaxillofac Surg., 2012; 40(1): 28-32.

7. Horowitz AM, Goodman HS, Yellowitz JA, Nourjah PA; The need for health promotion in oral cancer prevention and early detection. J Public Health Dent., 1996; 56(6): 319-330.

8. Lawoyin JO, Aderinokun GA, Kolude B, Adekoya SM, Ogundipe OT; Oral cancer awareness and prevalence of risk behaviours among dental patients in South-western Nigeria. Afr J Med Med Sci., 2003; 32(2):203-207.

9. Elango KJ, Anandkrishnan N, Suresh A, Iyer SK, Iyer SKR, Kuriakose MA; Mouth self examination to improve oral cancer awareness and early detection in a high-risk population. Oral Oncol., 2011; 47(7): 620-624.

10. Colella G, Gaeta GM, Moscariello A, Angelillo IF; Oral cancer and dentists: Knowledge, attitudes and practices in Italy. Oral Oncol., 2008; 44(4): 393-399.

11. S Ahmed, Rahman A, Hull S; Use of betel quid and cigarettes among Bangladeshi patients in an inner-city practice: prevalence and knowledge of health effects. Br Br J Gen Pract., 1997; 47(420): 431-434.

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