

**PREVALENCE OF ORAL LESIONS ASSOCIATED WITH
TOBACCO USE AMONG PATIENTS VISITING
K.S.R. INSTITUTE OF DENTAL SCIENCE & RESEARCH,
TIRUCHENGODE - A CROSS SECTIONAL
OBSERVATIONAL STUDY**

A Dissertation submitted
in partial fulfilment of the requirements
for the degree of

MASTER OF DENTAL SURGERY

**BRANCH – IX
ORAL MEDICINE AND RADIOLOGY**



THE TAMIL NADU DR. M.G.R MEDICAL UNIVERSITY


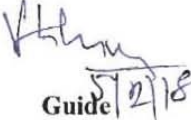

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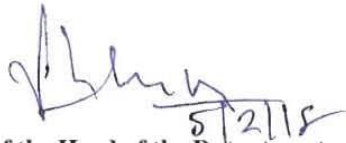
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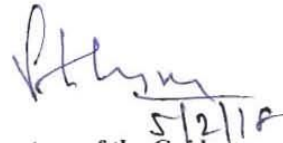
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INTRODUCTION

Tobacco use in any form is one of the leading preventable causes of morbidity and mortality in the world (1). Eighty-two percent of the world's 1.1 billion smokers now reside in low- and middle-income countries where, in contrast to the declining consumption in high-income countries, tobacco consumption is on the rise (2). Majority of them used smokeless tobacco (164 million) and 42 million used both forms of tobacco (3).

Tobacco has been used in both smoke and smokeless forms and its use in children and adolescents are reaching pandemic levels. The studies have shown that around 82,000 – 99,000 children / adolescents get addicted to this habit every day (4).

It is estimated that more than 150 million men and 44 million women in India use tobacco in various forms. Prevalence of tobacco use varies by area and gender; ranging from 12.8% in Punjab to 69.8% in Mizoram in men, and <1% in Punjab to 61% in Mizoram in women (5)

According to the World Health Organization (WHO) estimates , globally, there were 100 million premature death due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century (6).

Tobacco is the second major cause of death worldwide, and responsible for about 5million deaths annually (7). This figure is expected to rise to 8.4 million by the year 2020, with 70% of those deaths occurring in the developing countries (8).

An estimated one million people die every year due to tobacco related diseases in India. In order to reduce the impact of tobacco related morbidity and mortality, we need combination of strategies aimed at avoiding initiation of tobacco by non-users and cessation of users.

As dentists we often come across patients with tobacco habits, and are in a stronger position compared to other medical practitioners to counsel the patients regarding the adverse effects of tobacco. Also, it is imperative for a dentist to be equipped with all behavioural facts that can influence the tobacco habits in an individual, and all the epidemiological facts related to the habit. Very few hospital based studies have been conducted to assess the prevalence of the tobacco use and their epidemiological and behavioural patterns among patients with dental needs.

Therefore, the present study was conducted to evaluate the prevalence of tobacco use associated oral mucosal lesions among the patients in a rural set up and to elucidate the associated factors. This information is required to develop and implement locally relevant tobacco intervention strategies.

AIMS

The aim of this study is to estimate the prevalence of oral lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, tiruchengode.

OBJECTIVES

The main objective of this study is to estimate the prevalence of tobacco, its influences, triggers, and associated oral lesions and use the data for further studies and to augment the efforts of counselling the patients for tobacco cessation.

REVIEW OF LITERATURE

Prakash C Gupta (1996)⁹ conducted a survey of sociodemographic characteristics of tobacco use among 99598 individuals in Bombay, India using handheld computers. Permanent residents of Bombay aged 35 years and older with use of tobacco in various smoking and smokeless forms were included in this study. The results showed that prevalence of tobacco use among the woman was high (57.5%) but almost solely in the smokeless form. Among men 69.3% reported current tobacco use and 23.6% were smokers. The most common smokeless tobacco practice among women was mishri use (44.5%) and among men betel quid with tobacco (27.1%). About half of smokers used bidi and half smoked cigarettes. Educational level was inversely associated with tobacco use of all kinds except cigarette smoking.

M Rani, S Banu et al. (2003)¹⁰ estimated the prevalence and the demographic correlates of tobacco consumption in India in a national cross sectional household survey. Total of 315598 individuals 15 years or older from 91196 households were sampled in NFHS -2 survey (1998-1999). The results showed that 47% men and 14% of women either smoked or chewed tobacco.

Anil Goswami, V P Reddaiah et al. (2005)¹¹ conducted a study on tobacco and alcohol use in rural elderly Indian population. The prevalence of smoking was 71.8% in men and 41.4% in women. Regular alcohol intake was 16.3% of the men and with 0.8% of the women.

Neufeld K J, D H Peters et al. (2005)¹² conducted a study on regular use of alcohol and tobacco in India and its association with age, gender, and poverty. 471143 people over the age of 10 years were sampled in National Health Survey (1995-96). The national prevalence of regular use of smoking tobacco is estimated to be 16.2%, chewing tobacco 14% and alcohol 4.5%. Men were 25.5 times more likely than women to report regular smoking, 3.7 times more likely to regularly chew tobacco, and 9.7 times more likely to regularly use alcohol.

Saraswathi TR, Ranganathan K et al (2006)¹³ studied the prevalence of oral lesions in relation to habits. A hospital based cross-sectional study was carried out at Ragas Dental college, Chennai, India. Duration of the study was three months in 2004. Results showed that prevalence of oral soft tissue lesions was found in 4.1% of the study subjects, the prevalence of leukoplakia, OSF and oral lichen planus was 0.59%, 0.55% and 0.15% respectively. The prevalence of smoking, drinking alcohol beverages and chewing was 15.02%, 8.78% and 6.99% respectively.

Asha Pratinidhi, Sudesh Gandham et al (2010)¹⁴ studied the effects of Mishri use on the fetus during pregnancy and the perinatal outcome, and stopping its use. Results showed that 30.9% pregnant women were using Mishri. The complications during the pregnancy and the number of stillbirths were significantly more among Mishri users. Babies of who stopped/reduced consumption of Mishri (28.8%) were significantly benefited.

Vivek Gupta, Kapil Yadav et al (2010)¹⁵ studied the pattern of tobacco use across rural, urban, and urban-slum populations in a North Indian Community (Faridabad, Haryana). Result showed that tobacco use among male was 35.2% urban, 48.3% urban-slum, and 52.6%

in rural. Tobacco use among female was 3.5% urban, 11.9% urban-slums, and 17.7% rural. More males reported daily bidi smoking than cigarette use. Females using smoked tobacco were almost exclusively using bidis (urban 1.7%, 7.9%, 11% in rural). Daily use of chewed tobacco low in females than males.

Zaki Anwar Ansari, S Nafees Bano, et al (2010)¹⁶ have done a study on the prevalence of tobacco use among power loom workers in Allahabad, India. 448 workers were interviewed through a questionnaire survey. Prevalence of tobacco use was 85.9%, the prevalence of smoking and tobacco chewing were 62.28% and 66.07% respectively. Smoking was more common in the elderly, while chewing tobacco was popular among younger age group.

V Kasat, M Joshi et al (2012)¹⁷ estimated the prevalence of tobacco use, its influences, triggers, and associated oral lesions among the patients of Rural dental college and hospital Loni, Maharashtra, India, in a hospital based cross-sectional study. The results showed that the overall prevalence of tobacco use was 16.38%. Smokeless form of tobacco use was more prevalent in both males (81.84%) and females (100%). About 76.09% and 31.25% females developed the habit due to initial influence of friends. The most common oral mucosal lesion in both the males (42.20%) and females (11.07%) was tobacco hyperkeratosis. Most common trigger for tobacco use was work related (69.14%) in males and after meals (53.13%) in females.

Poornima Chandra , Poornima Govindraju.(2012)¹⁸ estimated the prevalence of oral mucosal lesions among tobacco users. A hospital based cross-sectional study was conducted among patients visiting the Rajarajeswari Dental College and Hospital, Bangalore, India. The prevalence of tobacco habit was 23.5%. The prevalence of oral mucosal lesions was (73.8%).

Leukoedema was the most prevalent lesion. Leukoplakia was found in 3.5% of the patients. Malignancy was found only among chewers.

Prashant B. Patil, Renuka Bathi et al (2013)¹⁹ estimated the prevalence of oral mucosal lesions in dental patients with smoking, chewing, and mixed habits. A hospital based cross-sectional study was conducted among patients visiting the SDM Dental College, Dharwad, Karnataka. A total of 2400 subjects (1200 subjects with and 1200 subjects without habits). Oral mucosal lesions were found in 322 (26.8%) subjects who had tobacco smoking and chewing habits. Oral leukoplakia (8.2%) and oral submucous fibrosis (OSF) (7.1%) were the prevalent oral mucosal lesions.

Sunil Surendraprasad Mishra, Lata Madhukar Kale et al (2014)²⁰ estimated the Prevalence of oral premalignant lesions and conditions in patients with tobacco and tobacco-related habits. A hospital based cross-sectional study conducted among the patient visiting Chatrapati Shahu Maharaj Shikshan Sanstha's Dental College, Aurangabad, Maharashtra India. The results showed that areca nut was the most popular product among young adults. The survey data suggested that only few of the patients had tried to stop these adverse habits at some point in their lives. The most common reason for this was, advice given by the dentist after the patients were made aware of these lesions.

Ottapura Prabhakaran Aslesh, Sam Paul et al (2015)²¹ estimated the prevalence of use of tobacco and also the prevalence of oral mucosal lesions among adult male interstate migrants workers in Urban North Kerala (Kannur), India. Total of 244 male migrant workers above 18 years attending routine health check-up camps were interviewed through a questionnaire. The results showed that the prevalence of current use of smoked tobacco, smokeless tobacco

and alcohol use were 41.8%, 71.7% and 56.6% respectively among migrants. Oral mucosal lesions were seen in 36.3% of participants. Among smokeless tobacco users 44.6% had lesions.

Shyam Sundar Behura, Mahaboob Kader Masthan et al (2015)²² studied the association of oral mucosal lesions in a group of Chennai population aged 15 years and above with smoking and chewing habits. 450 subjects were included in this study. The results showed that 78% of subjects smoked and/or chewed for more than 10 years as compared to 37.4% of the control group. Smoker's melanosis was the most common oral mucosal lesion followed by oral submucous fibrosis and leukoplakia.

Ambrish Mishra¹, Divashree Sharma et al (2015)²³ estimated the Pattern and prevalence of tobacco use and associated oral mucosal lesions among the patients of Shyam Shah Medical College, Rewa, Madhya Pradesh, India. The results showed that the overall prevalence of tobacco use was 24.78%. Smoking form was the most commonly used tobacco for males (44.56%) while smokeless tobacco was preferred by majority of females (69.12%). Oral mucosal lesions were seen in 32.51% subjects.

Sujatha S. Reddy, Radha Prashanth et al (2015)²⁴ estimated the prevalence of oral mucosal lesions among chewing tobacco users. A population based, cross-sectional study was conducted among a randomized cluster sample of adults in low income group (slums), of Bengaluru North, Karnataka state, India. The results showed that 44.1% showed mucosal changes. The most common finding was chewer's mucositis (59.5%) followed by submucous fibrosis (22.8%), leukoplakia (8%), lichenoid reaction (6.5%), oral cancer (2.7%), and lichen planus (0.5%).

Boddu Naveen Kumar, Ramesh Tatapudi et al (2016)²⁵ studied various forms of tobacco usage and its associated oral mucosal lesions among the patients attending Vishnu Dental College Bhimavaram, Andhra Pradesh, India, in a cross-sectional observational study. Total of 450 patients divided in to three groups based on type of tobacco use. Results showed that reverse smoking was more prevalent among old females with smoker's palate and carcinomatous lesions being the most common. Conventional smoking was more prevalent in males with maximum occurrence of leukoplakia and tobacco associated melanosis. Oral submucous fibrosis, quid induced lichenoid reaction were noticed in smokeless tobacco habit group.

Tasneem S Ain, Owais Gowhar et al (2016)²⁶ studied the prevalence of oral mucosal lesions and associated habits in 2 Government Hospitals in Srinagar and Pulwama district, Kashmir, India. The results showed that the prevalence of oral mucosal lesion was found to be 8%. Smoker's palate was the most frequently found oral lesion (3.89%). The most prevalent habit was cigarette smoking (56.46%).

Manjiri Joshi, Mansi Tailor (2017)²⁷ estimated the prevalence of most commonly reported tobacco- associated lesions in central Gujarat. Total of 60,018 patient attending the Department of Oral Medicine and Radiology of Manubhai Patel Dental College and Hospital, Vadodara, Gujarat, from January 2013 to December 2014 were screened. Results showed that maximum cases having habit of smokeless tobacco (37.9%) and smoking tobacco (36.5%). The overall prevalence was found to be 7.98%.

Jastin Gupta, Swarnalatha J et al (2017)²⁸ studied the prevalence of tobacco in Darbhanga, Bihar, India. They conducted a hospital based cross-sectional study. Results showed that overall prevalence of tobacco use was 16.69%, out of which 14.48% were males and 2.21% females. The majority of individuals were addicted due to peer pressure and friends. Females frequently used smokeless for cleaning teeth. The most common oral lesion in both males (53.26%) and females (18.55%) was tobacco hyperkeratosis.

Mohammed Junaid, Kalaiarasi et al (2017)²⁹ studied the pattern of tobacco usage among subjects with potentially malignant oral lesions or conditions in Chennai city, India. A comparative study. Total of 120 subjects were divided in to two groups. Results showed that cases with leukoplakia had a mean Fagerstrom nicotine dependence scores (FNTD) when compared to the control group. The most common form of smokeless tobacco used by case (OSMF) subjects was found to be mawa (53%). Mean FNTD scores of mawa users were higher than other tobacco users in both case and control group.

Jaiswal S, Srivastava R K et al (2017)³⁰ studied the prevalence of oral lesions and use of tobacco in the rural population of Uttar Pradesh, India. A total of 2551 subjects were recruited in the study. Results showed that the prevalence of tobacco chewing was 45.21%. Oral submucous fibrosis was the most common lesion.

Hamna Gul, Farhana Asif et al (2017)³¹ studied the self-perceived oral health status and cytomorphological changes in individuals with addictive oral habits. The study conducted in Punjab, Pakistan. Results showed that soft drink usage was associated with epithelial atypia, marijuana usage was associated with inflammatory infiltrate on cytology and snuff/niswar usage was associated with inflammatory atypia.

Divya Mehrotra, Sumit Kumar et al (2017)³² conducted a study on pan masala habits and risk of oral precancer. A cross-sectional community based study conducted at Lucknow, Uttar Pradesh. 0.45 million subjects were surveyed. Results showed that the prevalence of oral precancer was 3.17% in non tobacco pan masala users and 12.22% in tobacco users.

MATERIALS & METHODS

ARMAMENTARIUM

1. Mouth mirror
2. Probe
3. Explorer
4. Tweezer
5. Intraoral mirror
6. Measuring scale
7. Divider
8. Cheek retractor
9. Cotton pieces
10. Mask
11. Gloves

SOURCE OF DATA

The study sample will comprise of 69353 subjects, patients who reported to the Department of Oral Medicine Radiology of K.S.R INSTITUTE OF DENTAL SCIENCE AND RESEARCH, TIRUCHENGODE, TAMILNADU, were questioned to select the patients who consume tobacco in any form, in between November 2016 – October 2017, after obtaining a written informed consent.

INCLUSION CRITERIA

All the patients who attended the outpatient department of Oral Medicine and Radiology at K.S.R. Institute of Dental Sciences & Research with tobacco consumption were included in this study.

EXCLUSION CRITERIA

Subjects without consumption of tobacco have been excluded from this study.

METHOD OF COLLECTION OF DATA:

The study protocol was analyzed and approved by the institutional ethical review board. The present cross sectional study was conducted among 2835 subjects who consumption of tobacco. The subjects were selected based on the inclusion and exclusion criteria and those who were willing to participate in the study. The need and outcome of the study was explained to the subjects and an informed consent was obtained.

STUDY DESIGN:

A total of 2835 subjects with consumption of tobacco were enrolled in the study. The subjects were selected according to the inclusion and exclusion criteria. A self structured, pre-tested questionnaire was used for data collection and it was followed by clinical examination for any tobacco associated oral mucosal lesions.

QUESTIONNAIRE:

The questionnaire consisted of 13 questions. Patients were interviewed through a pre-tested structured questionnaire to collect data like age, sex, education, occupation, and socio-economic status, form of tobacco, age of onset, frequency, duration, and reason for initiation, triggers for tobacco use, any previous attempt to quit the habit and alcohol use.

TOBACCO USE IN INDIA

SMOKING FORM OF TOBACCO

Beedi

Crushed and dried tobacco is wrapped in tendu or temburni leaf leaves and rolled into a beedi. Beedis are smaller in size than the regular company-made cigarettes so more beedis are smoked to achieve the desired feeling caused by nicotine. The frequent inhalation of tobacco flakes has similar effects as the actual use of the tobacco product. Therefore, these families have an increased risk of lung diseases and cancers of the digestive tract. And, addiction is common among these families.

Cigarette

A cigarette is a finely cut tobacco rolled in paper. Cigarettes may come with filters, as thins, low-tar, menthol, and flavoured – to entice more users. Many people view cigar smoking as less dangerous than cigarette smoking. Cigarette smoking is more common in the urban areas of India. Cigarette smoking is on the rise.

Cigar

A cigar is a roll of tobacco wrapped in leaf of tobacco. Most cigars are made up of a single type of air-cured or dried tobacco. Cigar tobacco leaves are first aged for about a year and then fermented in a multi-step process that can take from 3 to 5 months.

Chillum

This involves smoking tobacco in a clay pipe. A chillum is shared by a group of individuals, so in addition to increasing their risk of cancer, people who share a chillum increase their chances of spreading colds, flu, and other lung illnesses. A chillum is also used for smoking narcotics like opium.

Hookah

The Hookah consists of a head, body water bowl and hose. Hookah smoking involves a device that heats the tobacco and passes it through water before it is inhaled. The tobacco is heated in the hookah usually using charcoal. According to a World Health Organization advisory, a typical one-hour session of hookah smoking exposes the user to 100 to 200 times the volume of smoke inhaled from a single cigarette. Even after passing through water, tobacco smoke still contains high levels of toxic compounds.

It is not a safer way to use tobacco. The use of hookah was once on the decline, but it has increased in recent years. Hookah is thought to be a sign of royalty and prestige and is available in high priced coffee shops in flavours like apple, strawberry, and chocolate. It is marketed as a "safe" recreational activity, but it is not safe and is finding increasing use among college students.

Chutta smoking and reverse chutta smoking

Chuttas are coarse tobacco cigars that are smoked in the coastal areas of India. Reverse chutta smoking involves keeping the burning end of the chutta in the mouth and inhaling it. This practice increases the chance of oral cancer.

Pipe

Pipes are often reusable and consist of a chamber or bowl, stem and mouthpiece. Tobacco is placed into the bowl and lit. The smoke is then drawn through the stem and mouthpiece and inhaled.

SMOKELESS FORM OF TOBACCO

Tobacco or tobacco-containing products are chewed or sucked as a quid, or applied to gums, or inhaled.

Khaini

This is one of the most common methods of chewing tobacco. Dried tobacco leaves are crushed and mixed with slaked lime and chewed as a quid. The practice of keeping the quid in the mouth between the cheeks and gums.

Gutkha

It is very popular among teenagers because it is available in small packets (convenient for a single use), uses flavouring agents and scents, and is inexpensive (as low as Re 1/- equivalent to 2 cents). Gutkha consists of areca nut (betel nut) pieces coated with powdered tobacco, flavouring agents, and other “secret” ingredients that increase the addiction potential.

Paan with tobacco

The main ingredients of paan (betel quid) are the betel leaf, areca nut, slaked lime. Sweets and other condiments can also be added.

Paan masala

Paan masala is a commercial preparation containing the areca nut, slaked lime, and catechu, with or without powdered tobacco. Its available in attractive sachets and tins.

Mishri, gudakhu and toothpastes

Mishri is roasted tobacco powder that is applied as a toothpowder. Gudakhu is a paste of tobacco and sugar molasses. These preparations are commonly used by women and direct application of tobacco to the gums.

Mawa

This is a combination of areca nut pieces, tobacco, and slaked lime that is mixed on the spot.

Dry snuff

This is a mixture of dried tobacco powder and some scented chemicals. It is inhaled and is common in the elderly population of India. Snuff is responsible for cancers of the nose and jaw.

TOBACCO ASSOCIATED ORAL MUCOSAL LESIONS

Long term contact of tobacco with the oral mucosa induces variety of changes which could be due to the carcinogen itself or as a protective mechanism of the oral cavity. These changes could be categorized as tobacco induced oral mucosal lesions which are less likely to cause cancer, lesions that are potentially malignant and tobacco induced malignancies.

Leukoedema

Leukoedema is a chronic white mucosal condition in which the oral mucosa has a grey opaque appearance. When the mucosa is stretched, the lesions disappear and reappear on releasing the mucosa. It develops due to piling of spongy cells. Unlike leukoplakia, leukoedema does not present a keratinized surface.

Smoker's palate

Smoker's palate is also known as leukokeratosis nicotina palate and is a common reaction of palatal mucosa to smoking. Clinically the lesion appear as diffuse white patch with numerous excrescences having central red dots corresponding to minor salivary gland ducts. These lesions are more prevalent in men due to increased usage of tobacco smoke among them.

Lichenoid lesions

Lichenoid lesions grossly resemble oral lichenplanus but have certain specific differences. The lesion is characterized by the presence of fine, white, wavy parallel lines that do not overlap or criss-cross is not elevated. The lesion generally occurs at the site of quid placement.

Smoker's melanosis

Oral pigmentation secondary to smoking may occur at any site with increased tendency to affect facial gingiva. The frequency of the lesions increases with heavy usage of beedi and cigarette smoke. It has been suggested that melanin production in the oral mucosa of smokers serves as a protective response against some of the harmful substances in tobacco smoke.

Leukoplakia

Leukoplakia is defined as a predominantly white lesion or plaque affecting the oral mucosa that cannot be characterized clinically or histopathologically as any other disease and is not associated with any other physical or chemical agents except tobacco. Leukoplakia is the term used to recognize white plaques of questionable risk having excluded other known diseases or disorders that carry no increased risk of cancer. A biopsy is mandatory. A definitive diagnosis is made when any etiological cause other than tobacco/areca nut use has been excluded and histopathology has not confirmed any other specific disorder.

Leukoplakia is considered as a potentially malignant disorder with a malignancy conversion rate ranging from 0.1% to 17.5%. In India, the prevalence of leukoplakia varies from 0.2% to 5.2% and malignant transformation ranges between 0.13% and 10% according to various studies. Leukoplakia may regress spontaneously or persist, recur or progress to cancer (Axell & Henricsson, 1981).

ERYTHROPLAKIA

Erythroplakia is an uncommon but severe form of precancerous lesion defined by WHO as "any lesion of the oral mucosa that presents as bright red velvety plaques which cannot be

characterized clinically or histopathologically as any other recognizable condition".
Prevalence rate in India is 0.02%.

TOBACCO POUCH KERATOSIS

Chewing of tobacco or dipping snuff leads to the development of a white mucosal lesion in the area of tobacco contact, It also called as smokeless tobacco keratosis or snuff dipper's keratosis. While these lesions are accepted as precancerous, they are significantly different from true leukoplakia and have a much lower risk of malignant transformation.

ORAL SUBMUCOUS FIBROSIS

Oral submucous fibrosis as a potentially malignant disease was first described in 1950's. It is a chronic disorder characterized by fibrosis of the lining mucosa of the upper digestive tract involving the oral cavity, oro pharynx- and hypo pharynx and the upper third of oesophagus. The fibrosis involves the lamina propria, sub mucosa and may extend into the underlying musculature, resulting in limited mouth opening.

Areca nut has been proved to be the single most important etiological factor responsible for OSMF. The pre-cancerous nature was first described by Paymaster in 1956 that was later confirmed by various studies. A malignant transformation rate was shown to be in the range of 7 to 13%. Previous data indicated that the prevalence of OSMF was in the range of 0.03% to 3.2%. The incidence is progressively increasing owing to the excessive usage of areca nut among various groups of population.

PALATAL CHANGES AMONG REVERSE SMOKERS

The term "palatal changes" describes the reaction of the palatal mucosa to reverse chutta smoking. This form of smoking evokes diverse alterations in the palatal mucosa (palatal keratosis, excrescences, patches, red areas, ulcerations, and palatal pigmentation). These changes have increased tendency for malignant transformation.

ORAL LICHEN PLANUS LIKE LESION

Lichen planus is a mucocutaneous disorder affecting the skin and mucous membrane. Oral lichen planus-like lesion consists of white, wavy, parallel, non-elevated striae that do not crisscross as in lichen planus. Betel-quid chewing is strongly associated with this lesion. However, if the betel-quid chewing habit is discontinued, most of the lesions regress.

FIGURE 1: ARMAMENTARIUM



FIGURE 2 : DIFFERENT FORM OF TOBACCO



FIGURE 3: SMOKERS MELANOSIS

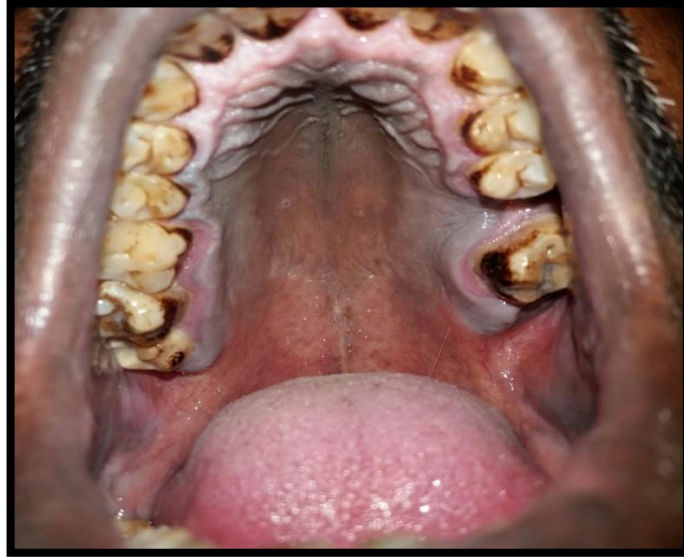


FIGURE 4: SMOKER'S PALATE



FIGURE 5: LEUKOEDEMA



FIGURE 6: TOBACCO POUCH KERATOSIS



FIGURE 7: ORAL SUBMUCOUS FIBROSIS



FIGURE 8: LEUKOPLAKIA



FIGURE 9: ORAL LICHEN PLANUS



FIGURE 10: KISSING LESION



FIGURE 11: CARCINOMA



STATISTICAL ANALYSIS

The data obtained from the study was entered in Microsoft Excel and statistical analysis was done. The data was analyzed using SPSS software (IBM SPSS Statistics for Windows, Version 16.0). Chi-Square was used to evaluate the relationships between the prevalence of qualitative variables. Significance level was fixed as 5%.

CHI – SQUARE TEST:

When the data is measured in terms of attributes or qualities and it is intended to test whether the difference in the distribution of attributes in different groups is due to sampling variation or not, the Chi square test is applied. It is used to test the significance of difference between two proportions and can be used when there are more than two groups to be compared.

RESULTS

In the study population of 69353 subjects were reported to the Department of Oral Medicine Radiology for some dental problem, out of which 2835 (4.08%) subjects were found to have tobacco consumption habits. Among them 2573 (90.8%) were males and 262 (9.2%) were females (Table 1).

Table 1: Gender wise distribution of tobacco users.

Gender	Frequency	Percent
Male	2573	90.8
Female	262	9.2
Total	2835	100

Tobacco related oral mucosal lesions were seen in 1492 (52.6%) subjects, out of which 1371 were males and 262 were females (Tables 2).

Table 2: Gender wise distribution of tobacco users according to presence of oral mucosal lesions.

Gender	Presence of Lesions				Total
	Lesions Present		No Lesion		
	N	%	N	%	N
Male	1371	53.3	1202	46.7	2573
Female	121	46.2	141	53.8	262
	1492	52.6	1343	47.4	2835

In the study population, 25.6% of the tobacco users were in the age group of 51-60 years, followed by 21- 30 age group with 21.9% subjects and 41- 50 age group with 21.3% subjects. For males the most common age group was 51- 60 years with 24.1% subjects followed by 21- 30 years with 23.9% subjects and 41- 50 age group with 21.5% subjects. For females tobacco

users, the most common age group was 51-60 years with 40.8% subjects followed by above 60 years with 18.2% subjects and 41-50 age group with 18.7% subjects (Table 3).

Table 3: Gender wise distribution of tobacco users according to age and presence of oral mucosal lesions.

			Gender					
			Male			Female		
			Presence of Lesions		Total	Presence of Lesions		Total
Lesions Present	No Lesion	Lesions Present	No Lesion					
Age	Up to 20	N	38	109	147			
		%	2.8	9.1	5.7			
	21 - 30	N	149	465	614	6		6
		%	10.9	38.7	23.9	5.0		2.3
	31 - 40	N	224	176	400	11	21	32
		%	16.3	14.6	15.5	9.1	14.9	12.2
41 - 50	N	354	200	554	32	17	49	
	%	25.8	16.6	21.5	26.4	12.1	18.7	
51 - 60	N	458	161	619	50	57	107	
	%	33.4	13.4	24.1	41.3	40.4	40.8	
Above 60	N	148	91	239	22	46	68	
	%	10.8	7.6	9.3	18.2	32.6	26.0	
Total	N		1371	1202	2573	121	141	262
	%		100.0	100.0	100.0	100.0	100.0	100.0

In the study population, 34% of oral mucosal lesions were present in the 51- 60 years age group followed by 41- 50 years age group with 25.9% of lesions present and 31- 40 years age group with 16% of lesion present. For males, oral lesions were more prevalent in 51- 60 years age group with 33.4% followed by 41- 50 years with 25.8% lesions and 31- 40 age group with 16.3% lesions. For females oral lesions were more prevalent in 51- 60 age group with 41.3% followed by 41- 50 years with 26.4% lesions and above 60 years group with 18.2% lesions (Table 3). The difference between the prevalence of tobacco use and oral lesions in relation to their age and gender was statistically highly significant ($\chi^2 = 18.187$; $P < 0.03$).

In the present study population, 33.7% tobacco consumers were secondary level of school education followed by 27% were primary level of education. For males 36.4% subjects were secondary level of school education followed by 27.5% subjects were graduate. For females 46.9% subjects were illiterate followed by 46.2% subjects were primary level of school education (Table 4).

Table 4: Gender wise distribution of tobacco users according to education and presence of oral mucosal lesions

			Gender					
			Male			Female		
			Presence of Lesions		Total	Presence of Lesions		Total
			Lesions Present	No Lesion		Lesions Present	No Lesion	
Education	Illiterate	N	124	48	172	55	68	123
		%	9.0	4.0	6.7	45.5	48.2	46.9
	Primary	N	463	185	648	60	61	121
		%	33.8	15.4	25.2	49.6	43.3	46.2
	Secondary	N	577	359	936	6	12	18
%		42.1	29.9	36.4	5.0	8.5	6.9	
Higher Secondary	N	60	49	109				
%		4.4	4.1	4.2				
Graduate	N	147	561	708				
	%	10.7	46.7	27.5				
Total	N		1371	1202	2573	121	141	262
	%		100.0	100.0	100.0	100.0	100.0	100.0

In the study population, 39% of oral mucosal lesions were in subjects with secondary school education followed by 35% lesions which were in subjects with primary school education. For males, oral mucosal lesions were more prevalent in subjects with secondary level school education (42.1%) followed by subjects with primary education (33.8). For females, oral mucosal lesions were more prevalent in subjects with illiterate group (46.9%) followed by

In the present study, smoking form of tobacco was used by 1586 (56%) subjects; smokeless forms were used by 838 (30%) subjects. The dual use of both forms was reported in 14% of the subjects. In present study subjects in smoking form and subjects with both form of tobacco use were 100% males. Whereas females were 100% using smokeless tobacco (Table 7A). The difference between the prevalence of tobacco use in relation to their form of tobacco use and gender was statistically highly significant ($\chi^2 = 687.94$; $P < 0.001$).

Table 7.1: Gender wise distribution of subjects according to form of tobacco use.

Gender	Form of Tobacco Use						Total		Chi square	p
	Smoking Tobacco		Smokeless Tobacco		Both		N	%		
	N	%	N	%	N	%				
Male	1586	100	576	69	411	100	2573	91	687.94	< 0.001**
Female			262	31			262	9		
Total	1586	100	838	100	411	100	2835	100		

In the present study, 49% subjects with smoking form of tobacco user were presented with oral mucosal lesions, in smokeless form user 55% subjects presented with lesions and 60% of oral lesions presented in both form tobacco users (Table 7B). The difference between the prevalence of tobacco use and oral lesions in relation to their form of tobacco use and gender was statistically highly significant ($\chi^2 = 16.85$; $P < 0.001$).

Table 7.2: Gender wise distribution of subjects according to form of tobacco use and presence of oral mucosal lesions.

Presence of Lesions	Form of Tobacco Use						Total		Chi square	p
	Smoking Tobacco		Smokeless Tobacco		Both		N	%		
	N	%	N	%	N	%				
Lesions Present	784	49	463	55	245	60	1492	53	16.85	< 0.001**
No Lesion	802	51	375	45	166	40	1343	47		
Total	1586	100	838	100	411	100	2835	100		

In types of tobacco user, 1997 subjects were smokers (combination of subjects in smoking form of tobacco users – 1586 and smoking form of tobacco users in both form tobacco users - 411), 1249 subjects were tobacco chewers (combination of subjects in smokeless form of tobacco user – 838 and smokeless form of tobacco user in both form tobacco user – 411).

In the present study, 962 subjects were cigarette smokers followed by 911 subjects were beedi smokers and 662 subjects were Hans tobacco chewers. Majority of oral lesions were present in beedi smokers (34%) followed by Hans tobacco chewers (14%) and cigarette smokers (10%).

In the smokers group, 48% were cigarette smokers followed by beedi smokers (45.6%). Majority of lesions present in subject beedi smokers (66%).

In the tobacco chewers, 53% were Hans tobacco chewers followed by betel quid and tobacco chewers (36%). Majority of lesions in males were present in Hans tobacco chewers (67.8).

In females 98% were betel quid with tobacco chewers. 100% of lesions present in betel quid with tobacco chewers (Table 8).

Table 8: Gender wise distribution of subjects according to the type of tobacco user.

		Male		Female		Total
		Lesions Present	No Lesion	Lesions Present	No Lesion	
Tobacco Smokers	Beedi	683	228			911
	Cigarette	286	676			962
	Both	60	59			119
	Others		5			5
Tobacco Chewers	Betel quid With Tobacco	117	70	121	137	445
	Gutka	67	65			132
	Khaini/Hans	398	260		4	662
	Others	5	5			10

In the smokers group, 60% of subjects had started the tobacco habit around the age of 16-25 years, 15% of them at or before 15 years. Majority of lesions (54.4%) were present with subjects who start the habit around the age of 16-25 followed by 29.2% in subjects at or before 15 years.

In tobacco chewers group, 51.7% of males have started the habit around the age of 16-25 followed by 22.4% subjects at or before 15 years. In males majority of lesions (45.7%) were present in subjects start the habit around the age of 16-25.

In females 32% have started the habit around 16-25 years followed by 19% in 26-35 age of onset. In females majority of lesions (35.5%) presented in subject with age of onset 16-25 (Table 9).

Table 9: Gender wise distribution of subjects according to the age of onset and presence of oral mucosal lesions.

Gender		Age of Onset												Total
		Up to 15		16 -25		26 - 35		36 - 45		46 - 55		56 - 65		
		YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	
ST	Male	301	182	560	632	118	128	45	20	5	6	0	0	1997
CT	Male	75	29	268	242	154	67	56	52	29	10	5	0	987
	Female	11	35	43	42	34	16	16	27	17	21	0	0	262

ST – Tobacco smokers, CT – Tobacco chewers, YES – Lesions present, NO – No lesion.

In the present study, subjects were divided in to three groups according to the frequency of tobacco use 1.Mild (<5 times) 2.Moderate (6-20 times) 3.Severe (>20 times)

In smokers group, 51% were mild tobacco users and majority oral mucosal lesions (54.4%) were present in moderate tobacco users.

In male tobacco chewers, 71% of subject were mild tobacco users with 76.6% had oral mucosal lesions. In female 87% of subject were mild tobacco users with 90% had oral mucosal lesions (Table10)

In smokers group, 37.6% subjects had less than 5 years of tobacco use followed by 11-20 years tobacco user group (22%). Majority of oral lesions (28.4%) were present in 11-20 years tobacco users followed by 22.5% in more than 30 years of tobacco users group.

Table 10: Gender wise distribution of subjects according to frequency of tobacco use and presence of oral mucosal lesions.

	Gender	Frequency						Total
		Up to 5 Mild		6 – 20 Moderate		Above 20 Severe		
		Lesions Present	No Lesion	Lesions Present	No Lesion	Lesions Present	No Lesion	
Tobacco smokers	Male	365	658	560	283	104	27	1997
Tobacco chewers	Male	450	354	126	46	11	0	987
	Female	109	119	12	22	0	0	262

In male chewers 51% subjects were less than 5 years of tobacco use followed by 5-10 years tobacco user group. Majority of oral lesions (45%) in male chewers were less than 5 years of frequency. In females 33% were greater than 30 years of tobacco use followed by 26% of subjects with less than 5 years (Table 11).

Table 11: Gender wise distribution of subjects according to the duration of tobacco use and presence of oral mucosal lesions.

	Gender	Duration										Total
		< 5		5 - 10		11 - 20		21 - 30		Above 30		
		Lesions Present	No Present	Lesions Present	No Lesion	Lesions Present	No Lesion	Lesions Present	No Lesion	Lesions Present	No Lesion	
ST	Male	195	557	138	133	293	156	171	86	232	36	1997
CT	Male	269	235	168	64	81	71	32	10	37	20	987
	Female	44	25	16	44	22	6	12	6	27	60	262

In maximum number of tobacco users (72%), the habit was initiated by friends, in 10% they were initiated to practice the habit during driving and night shift. In males 75% were influenced by friends followed by during driving and night shift (11%). In females 41% have

started the habit due to toothache followed friends (37%) and family (18%) (Table12). The difference between influencing factors and gender was statistically highly significant ($\chi^2=86.304; P < 0.001$).

Table 12: Gender wise distribution of subjects according to the reason for initiation of tobacco use.

Influence	Male		Female		Total	
	N	%	N	%	N	%
Friends	1942	75	97	37	2039	72
Stress / Loneliness	120	5	10	4	130	5
Parents / Family	58	2	48	18	106	4
Driving / Night Shift	280	11			280	10
To Style / Fashion / Follow Role Model	107	4			107	4
Toothache	26	1	107	41	133	5
Work Related	11	0			11	0
Others	29	1			29	1
Total	2573	100	262	100	2835	100

Most common trigger for tobacco use was after meals or with tea/coffee (60%) followed by during free time or relaxation (13%). In males 58% were triggered to use tobacco after meals or with tea/coffee followed by free time or relaxation (14%). In females 79% have been triggered to use tobacco after meals or with tea/coffee followed by during work time (11%) (Table13). The difference between triggering factors and gender was statistically highly significant ($\chi^2=106.1; P < 0.001$).

In the study population 27% of them had attempted to quit the habit. It was 28% among males and 16% among females (Table 14)

Table 13: Gender wise distribution of subjects according to triggers for tobacco use.

Triggers	Male		Female		Total	
	N	%	N	%	N	%
After Meals / With Coffee Or Tea	1499	58	207	79	1706	60
During Morning Toilet	119	5	5	2	124	4
Work related	166	6	28	11	194	7
Relaxing / Free Time	359	14	5	2	364	13
Stress	56	2			56	2
Driving / Night Shift	214	8	6	2	220	8
Drinking Alcohol	34	1			34	1
Others	11	0	5	2	16	1
Not Specific	115	4	6	2	121	4
Total	2573	100	262	100	2835	100

Table 14: Gender wise distribution of subjects according to attempt to quit the tobacco use.

Gender	Attempt to Quit				Total	
	Yes		No			
	N	%	N	%	N	%
Male	726	95	1847	89	2573	91
Female	42	5	220	11	262	9
Total	768	100	2067	100	2835	100

In the study population 1342 (47%) of them were alcohol users. All the male patients had the habit of alcohol consumption (100%). Among the patients with alcohol habit 65.6% were presented with oral lesions. Alcohol use along with different form of tobacco use the lesion

present in 63.4% of smoking tobacco use 63.6% smokeless form of tobacco use and 73.8% in both form of tobacco users (Table 15). The difference between the prevalence of alcohol use and different form of tobacco use was statistically highly significant ($\chi^2 = 10.42$; $P < 0.005$).

Table 15: Distribution of tobacco users according to alcohol use and presence of oral mucosal lesions.

Alcohol use		Presence of Lesion				Total	
		Lesion Present		No Lesion		N	%
		N	%	N	%		
Smoking Tobacco	492	63.4%	284	36.6%	776	100.0%	
Smokeless Tobacco	185	63.6%	106	36.4%	291	100.0%	
Both	203	73.8%	72	26.2%	275	100.0%	
Total	880	65.6%	462	34.4%	1342	100.0%	

In the present study, among the total number of subjects, 1492 (53%) subjects had lesions, out of which single lesions was presented in 1262 (45%) subjects, two or more lesions were presented in 230 (8%) subjects. In males 1371 (53%) subjects presented with lesions, out of which single lesions was presented in 1151 (44%) subjects, two or more lesions were presented in 220 (9%) subjects. In females 262 (46%) present with lesions, out of which single lesions was presented in 111(42%) subjects, two or more lesions were presented in 10 (4%)subjects (Table 16).

In the present study individual lesion is a combination of different type of single lesion with same type of lesions in the multiple lesions.

Out of study population, 2835 Tobacco pouch keratosis was seen as a individual lesion in 550 subjects (19%) followed by Smokers palate in 417 subjects (15%) and Leukoplakia in 355 subjects (13.5%)

In males most prevalent individual lesion was Tobacco pouch keratosis presented in 468 subjects (18%) followed by Smokers palate in 417 subjects (16%) and Leukoplakia 355 subjects (13%). In females most common individual lesion was Tobacco pouch keratosis present in 82 subjects (31%) followed by leukoplakia presented in 33 subjects (13%) (Table17)

Table 16: Gender wise distribution of subjects according to the presence of single and multiple lesions.

Type of Lesion	Male		Female		Total	
	N	%	N	%	N	%
Smokers Palate	275	11			275	10
Leukoplakia	171	7	22	8.4	193	7
Tobacco Pouch Keratosis	448	17	77	29	525	18.5
Oral Submucous Fibrosis	67	2.5	11	4.2	78	2.7
Carcinoma	4	0.1	1	0.4	5	0.2
Smokers Melanosis	148	6			148	5
Candidal Infection	27	1			27	1
Leukoedema	11	0.4			11	0.4
leukoplakia and smokers palate	102	4			102	3.6
leukoplakia and lichenoid reaction			5	2	5	0.2
leukoplakia and smokers melanosis	32	1.2			32	1.1
leukoplakia and tobacco pouch keratosis	10	0.4	5	2	15	0.5
leukoplakia and candidal infection	14	0.5			14	0.5
Oral submucous fibrosis and carcinoma	2	0			2	0
Oral submucousfirosis and tobacco pouch	10	0.4			10	0.4
Oral submucous fibrosis and leukoplakia	5	0.2			5	0.2
Oral submucous fibrosis and smokers palate	5	0.2			5	0.2
Oral submucous fibrosis and candidal infection	5	0.2			5	0.2
Smokers palate and candidal infection	14	0.5			14	0.5
Leukoplakia and smokers palate and candidal infection	16	0.6			16	0.6
Leukoplakia and smokers palate and leukoedema	5	0.2			5	0.2
Total	1371	53	121	46	1492	53

Table 17: Gender wise distribution of subjects according to the presence of individual lesions

Individual Lesions	Sex				Total	
	Male		Female			
	N	%	N	%	N	%
Smokers Palate	417	16	0	0	417	15
Leukoplakia	355	13	33	13	387	13.5
Tobacco Pouch Keratosis	468	18	82	31	550	19
Oral Submucous Fibrosis	89	3.4	12	.5	101	4
Carcinoma	6	0.2	1	0.3	7	0.2
Smokers Melanosis	180	7	0	0	180	6.3
Others (Candidal Infection, Leukoedema, Lichenoid Reaction)	92	3.4	6	2.2	98	4

In smoking form tobacco users group most common individual lesion was Smokers palate 26% followed by Leukoplakia 20%, but Tobacco pouch keratosis and oral submucous keratois were absent.

In smokeless form of tobacco users group most common individual lesion was Tobacco pouch keratosis in 42% subjects followed by oral submucous fibrosis in 10% subjects, but smokers palate and smokers melanosis were absent

In both forms of tobacco users group most common individual lesion was Tobacco pouch keratosis in 49% subjects followed by Leukoplakia in 6% subjects (Table 19)

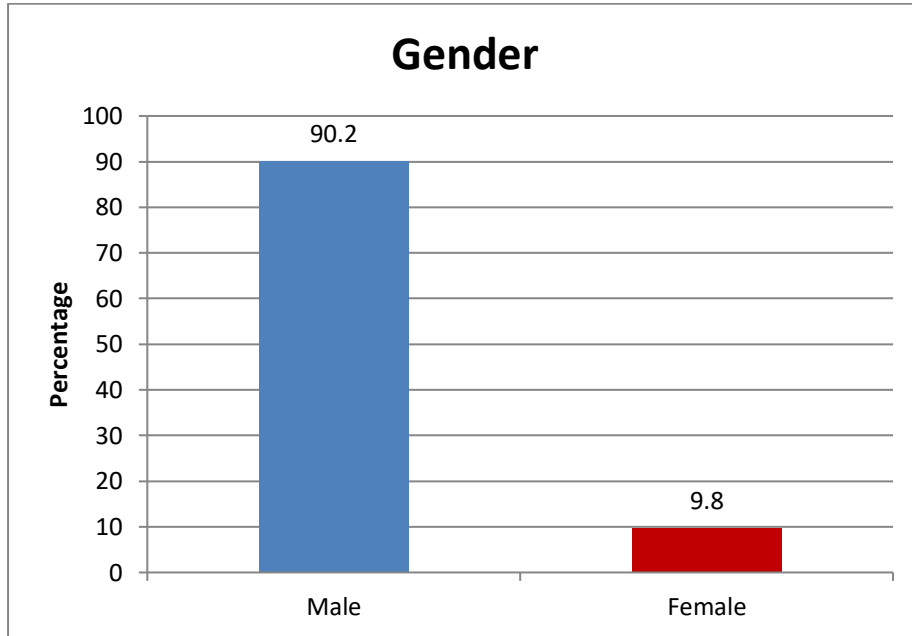
Table 18: Distribution of subjects according to the type of tobacco user and presence of single or multiple lesions.

Type of Lesion	Form of Tobacco Use						Total		Chi square	p
	Smoking Tobacco		Smokeless Tobacco		Both		N	%		
	N	%	N	%	N	%				
Smokers Palate	270	17			5	1	275	10	1469.81	< 0.001**
Leukoplakia	150	9	33	4	10	2	193	7		
Tobacco Pouch Keratosis			335	40	190	46	525	19		
Oral Submucous Fibrosis			68	8	10	2	78	3		
Smokers Melanosis	144	9			4	1	148	5		
Carcinoma	3	0.2	1	0.1	1	0.2	5	0.18		
Candidal Infection	27	2					27	1		
Leukoplakia and Smokers Palate	102	6					102	4		
Leukoplakia and Smokers Palate and Candidal Infection	16	1					16	1		
Leukoplakia and Lichenoid Reaction			5	0.6			5	0.18		
Leukoplakia and Smokers Melanosis	32	2.0					32	1.13		
Oral Submucous Fibrosis and Candidal Infection					5	1.2	5	0.18		
Leukoedema	11	0.7					11	0.39		
Oral Submucous Fibrosis and Leukoplakia			5	0.6			5	0.18		
Leukoplakia and Smokers Palate and Leukoedema	5	0.3					5	0.18		
Leukoplakia and Tobacco Pouch Keratosis			5	0.6	10	2.4	15	0.53		
Smokers Palate and Candidal Infection	14	0.9					14	0.49		
Oral SubmucousFirosis and Tobacco Pouch Keratosis			10	1.2			10	0.35		
Leukoplakia and Candidal Infection	10	0.6			4	1.0	14	0.49		
Oral Submucous Fibrosis and Carcinoma			1	0.1	1	0.2	2	0.07		
Oralsubmucous Fibrosis and Smokers Palate					5	1.2	5	0.18		
Total	784	49	463	55	245	60	1492	53		

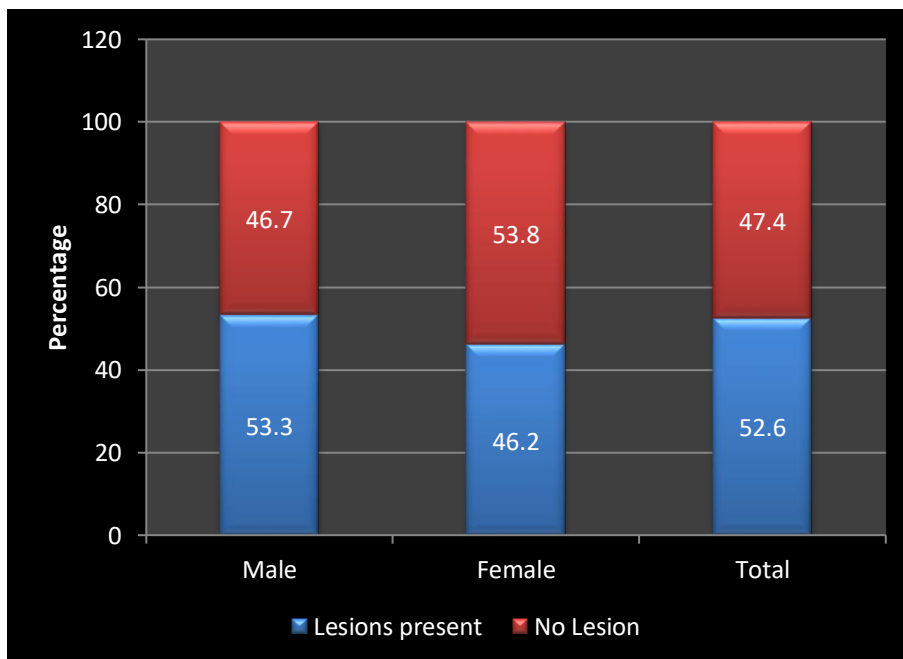
Table 19: Distribution of subjects according to the form of tobacco use and presence of individual lesions

Individual Lesion	Smoking tobacco		Smokeless tobacco		Both	
	N	%	N	%	N	%
Smokers Palate	407	26	0	0	10	2
Leukoplakia	315	19.8	48	6	24	5.5
Tobacco Pouch Keratosis	468	0	350	42	200	49
Oral Submucous Fibrosis	89	0	84	10	21	5
Carcinoma	3	0.2	2	.2	2	0.5
Smokers Melanosis	176	11	0	0	4	1
Others (Candidal Infection, Leukoedema, Lichenoid Reaction)	83	5	5	.6	9	2

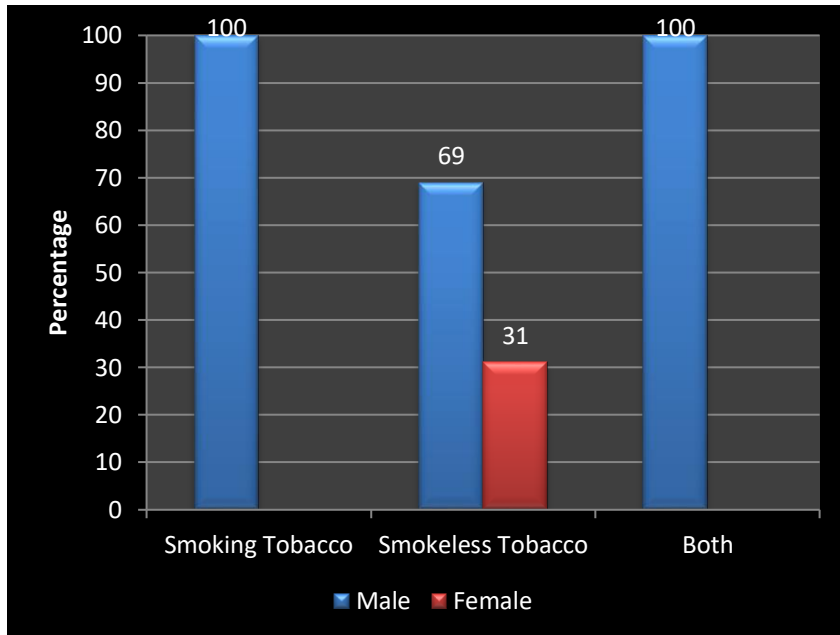
Graph 1: Gender wise distribution of tobacco users.



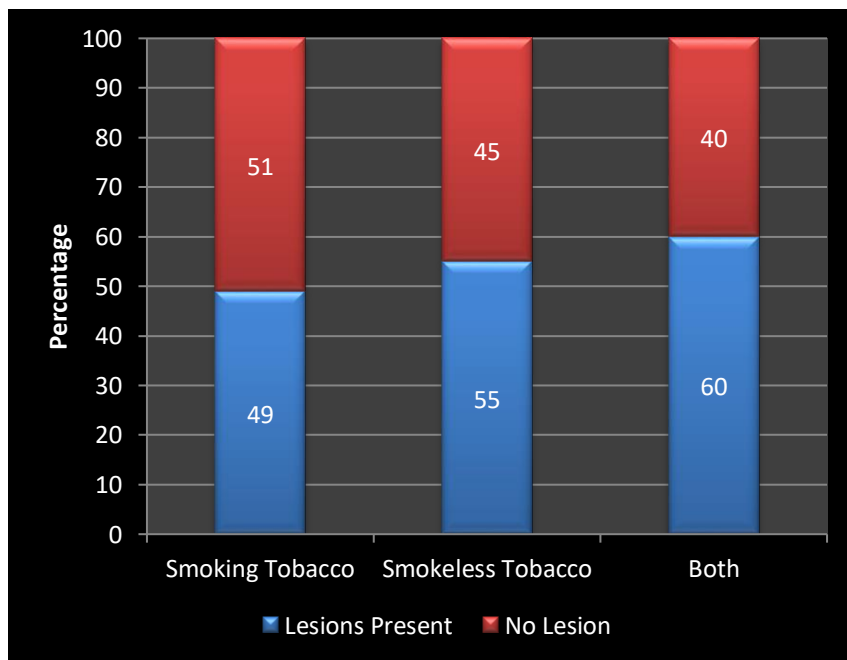
Graph 2: Gender wise distribution of tobacco users according to presence of oral mucosal lesions



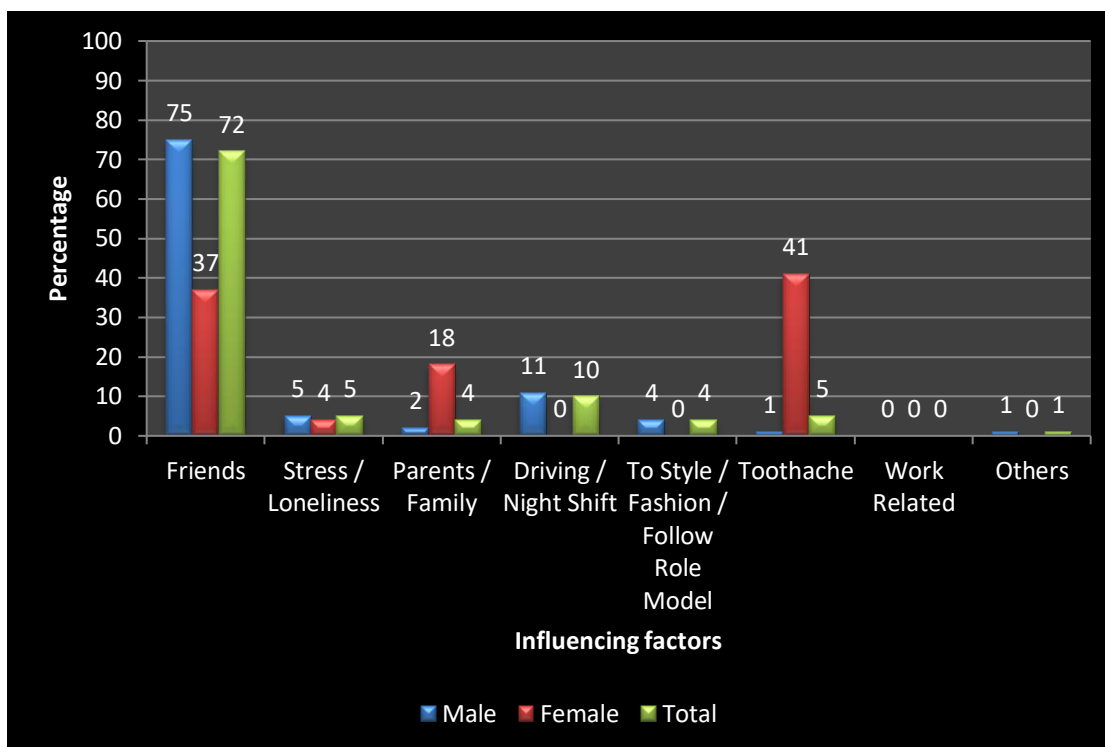
Graph 3: Gender wise distribution of subjects according to form of tobacco use



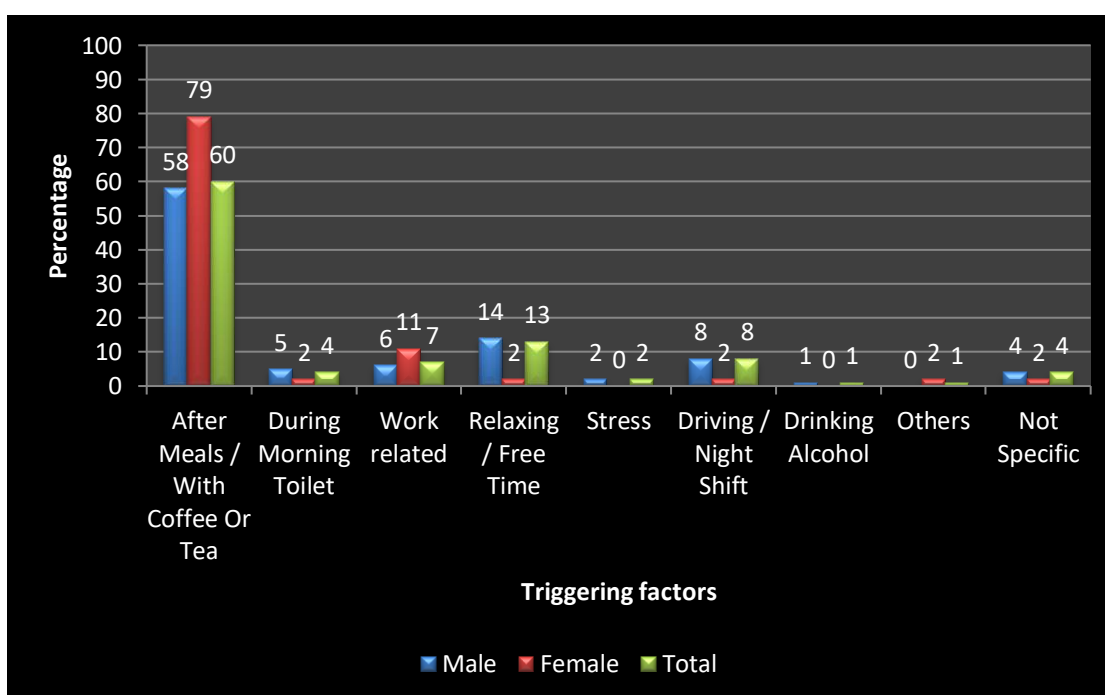
Graph 4: Gender wise distribution of subjects according to form of tobacco use and presence of oral mucosal lesions.



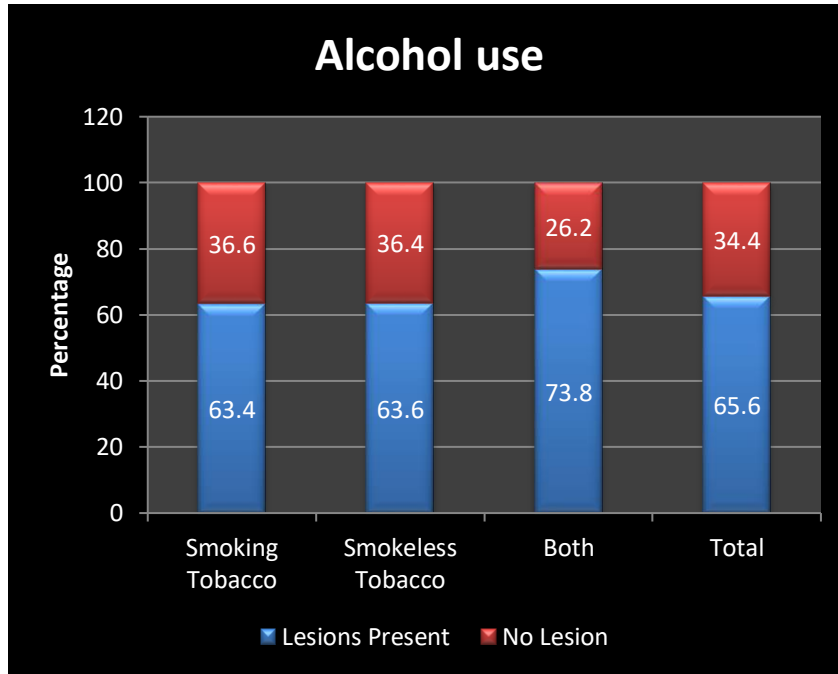
Graph 5: Gender wise distribution of subjects according to the reason for initiation of tobacco use



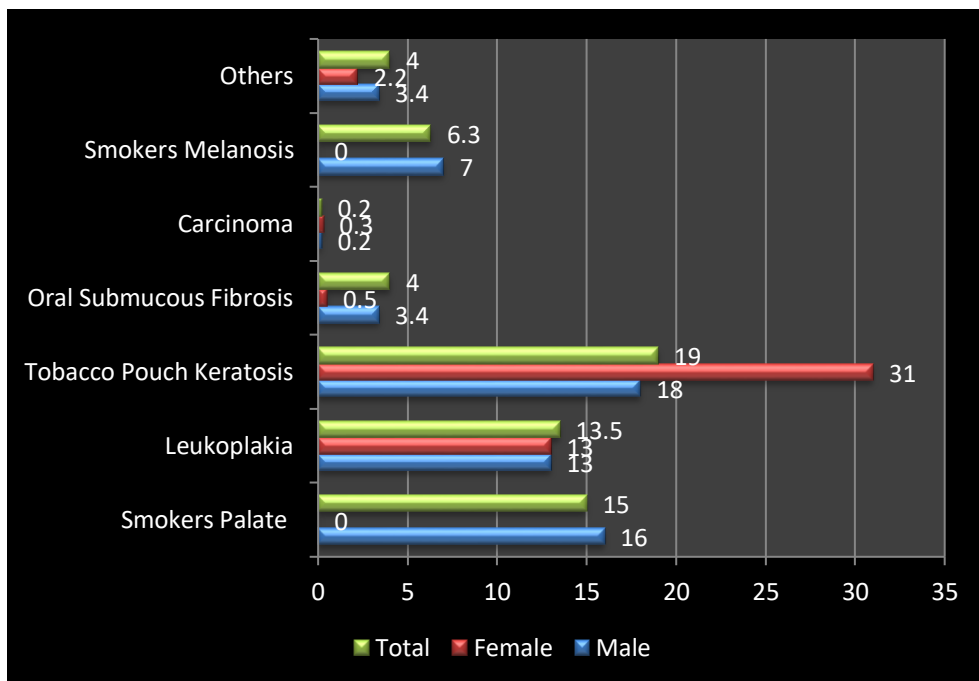
Graph 6: Gender wise distribution of subjects according to triggers for tobacco use.



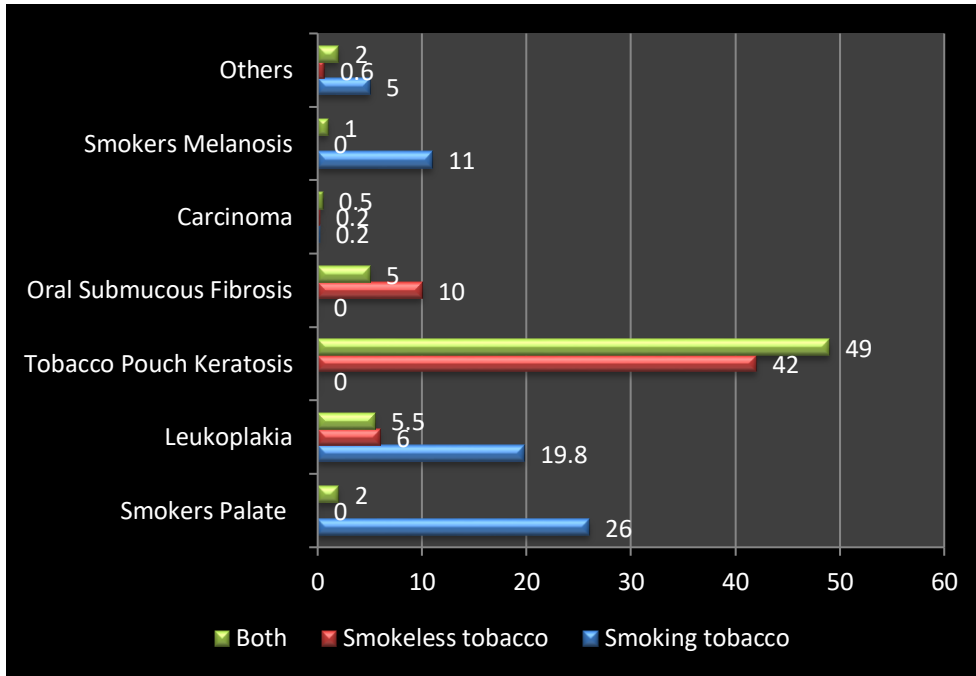
Graph 7: Distribution of tobacco users according to alcohol use and presence of oral mucosal lesions.



GRAPH 8: Gender wise distribution of subjects according to the presence of individual lesions



Graph 9: Distribution of subjects according to the form of tobacco use and presence of individual lesions



DISCUSSION

The overall prevalence of tobacco use in this study was 4.08% with 2835 users which was very lower than that reported by Chaudhry et al³³ 29.6% in Karnataka and 34.6% in Uttar Pradesh, 24.78% reported in Madhya Pradesh by Mishra et al²³, and as a national average of 30.2%.

Tobacco use in India has been higher among males than females in India. In this study population, 90.8% were males and 9.2% were females. Male predominance seen in this study was in accordance with Kasat et al¹⁷ (91.7%), which is higher than reported by Mishra et al²³ (75.80%), Sinha et al³⁴ (71%), Gupta et al¹⁵ (52.6%), Chaudhry et al³³ in rural UP (51%), National Family Health survey – 3 report (61.1%). In this study, prevalence of tobacco use was 9.8% among women which is comparable to Kasat et al¹⁷ (8.82%).

The prevalence of oral lesions in tobacco users in this study was 52.6% which was in accordance to 49.52% reported by Kasat et al¹⁷, 44.1% reported by Sujatha et al²⁴, 43.12% reported by Mishra et al²³, which was more than (26.8%) reported by Patil et al¹⁹, 7.98% reported by Manjiri et al²⁷, 4.1% reported by Saraswathi et al¹³, but less than 73.8% reported by Chandra et al. The difference can be explained by the lower rate of use of tobacco among the study participants which was 6.9% in Saraswathi et al¹³, 7.98% in Manjiri et al²⁷, 23.5% Chandra et al¹⁸ and 50% Patil et al¹⁹. This difference can be attributed to the variations in the study population surveyed, i.e., a hospital based study with mixed population and differences in the pattern and duration of habits.

In this study, overall education attainment of patients was low (primary and secondary school education – 60.7%) which supports the findings that tobacco use is higher among

individuals with lower level of education as evidenced by Rani et al¹⁰, Neufeld et al¹², Mishra et al²³.

In this study, most of the males (48.1%) and females (97.7%) with tobacco habits had very less income (<5000 rupees) which is in contrast with the study of Saraswathi et al¹³, but consistent with the study of Kinra et al³⁴, and the overall national situation, thus supporting the finding that tobacco use is higher among individuals with lower standards of living.

In this study, the form of tobacco use, smoking tobacco (55.9%) was more common than the smokeless form (20.3%) in males, which is consistent with the finding of Gupta et al¹⁵, but in contrast with Kasat et al¹⁷, Sinha et al²⁸, Manjiri et al²⁷, Aslesh et al²¹. In this study, all females using smokeless form of tobacco (100%) which is consistent with the finding of Kasat et al¹⁷, Gupta et al¹⁵.

In this study, among males light tobacco users (61.2%) were higher in number than moderate tobacco users (34%). Which is comparable to Kasat et al¹⁷, which is in contrast to the study of Goswami et al¹¹. In this study, females were mainly light tobacco users 41.6% which is lower than reported by Kasat et al¹⁷ (90.2%), Goswami et al¹¹ (71.8%).

In the present study, friends was the most common reasons for tobacco use initiation in males, which is consistent with the study done by Kasat et al¹⁷ (76%), which is in contrast to the study of Mishra et al²³ (most common reason was not specific reason - 23.96%). In females most common reasons for tobacco use initiation was toothache (41%) followed by friends (37%), which in contrast with Kasat et al¹⁷ (cleaning of teeth – 34.37%), Mishra et al²³ (not specific reason – 33.33%)

In this study, most common trigger for tobacco use in males was after meals / with tea or coffee (58%), which is comparable with Kasat et al¹⁷ (after meals – 53.13%), which is in

contrast with Mishra et al²³ (feeling of being able to work efficiently – 31.13%). In females most common trigger for tobacco use was after meals / with tea or coffee (79%), which is in contrast with Kasat et al¹⁷ (during morning toilet – 45.31%), Mishra et al²³ (for morning toilet – 28.77%).

In this study, all the lesions were more prevalent in men than women, which were consistent with study by Saraswathi et al¹³, Kasat et al¹⁷.

In this study, most common oral lesion in both the gender was tobacco pouch keratosis , which is comparable with Kasat et al¹⁷, in contrast with Saraswathi et al¹³ (melanosis was the most common lesion in both gender), and Manjiri et al²⁷ (in males most common lesion was smokers palate where as in females was OSMF). In this study, smokers palate was the second most common lesion in males, which is comparable with Saraswathi et al¹³, in contrast with Kasat et al¹⁷ (oral submucous fibrosis) and Manjiri et al²⁷ (tobacco pouch keratosis). In this study, second most common lesion in females was leukoplakia, which comparable with Saraswathi et al¹³, in contrast with Kasat et al¹⁷ (smokers palate), Manjiri et al²⁷ (tobacco pouch keratosis).

Whitish mucosa with red centres is a characteristic finding of the hard palate in smokers. The aetiology is probably related more to the high temperature rather than the chemical composition of the smoke, although there is a synergistic effect of the two (Axell et al, 1990). The prevalence of smoker's palate (15%) was higher to the previous studies done by Chandra et al¹⁸ (5.2%), lower than reported by Manjiri et al²⁷ (34.4%).

In present study, the prevalence oral submucous fibrosis was 4%. These results lower than report by Kasat et al¹⁷ (15.30%), Patil et al¹⁹ (7.1%), and Mishra et al²³ (5.43%) .These results higher than that previous studies Chandra et al¹⁸ (2.2%), Gupta et al¹⁵ (3.2%) 1998;

Saraswathi et al¹³ (0.05%). The study reinforces the association of OSMF with HANS tobacco and areca nut chewing.

Leukoplakia, a pre-malignant lesion associated with both forms of tobacco, had an overall prevalence of 13.5. These higher than those of other authors Patil et al¹⁹ (8.2%), Chandra et al¹⁸ (3.5%), Mishra et al²³ (3.31%).

Tobaccopouch keratosis is confined to areas in direct contact with spit tobacco, chronically stretched tissues in the area of tobacco placement leads flaccidity. It is typically appear as a thin, grey or greyish white, almost 'translucent' plaque with border that blends gradually into the surrounding mucosa (Axell et al, 1990). In our study, the overall prevalence was 19%. Which were less than that reported by kasat et al¹⁷ (78.14%), Mishra et al²³ (31.83%) and Manjiri et al²⁷ (30.1%). These results higher than reported by Chandra et al¹⁸ (1.4%)

. The prevalence of malignancy in the present study was 0.2%. These results are similar to study done by Chandra et al¹⁸ (0.1%)

Smoking induces increased melanin pigmentation in the oral mucosa. It may be due to the effects of nicotine on melanocytes. Nicotine appears to directly stimulate melanocytes to produce more melanosomes. In the present study, melanosis was more prevalent among smokers (6.3%). This higher than reported by Chandra et al¹⁸ 5.4%.

SUMMARY

This study was started with an aim to evaluate the prevalence of oral lesion associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences and Research in the period of 1 year.

A total of 69353 subjects were reported to department of oral medicine and radiology. Out of which 2835 subjects were found to have tobacco consumption habit. The data collected from each patient was recorded in a self structured questionnaire. Clinical examination was done to check the presence of oral mucosal lesion.

The distribution of tobacco use according to the gender were 2573(90.8%) males and 262(9.2%) females. In that, 1371(53.3%) of males and 121(46.2%) of females were presented with oral mucosal lesions.

Oral mucosal lesions was more prevalent in 51-60 years age group with 34% , subjects with secondary level of school education 39%, subjects with labourers by occupation 27.5%, subjects with no or less than 5000 income 56%.

Oral mucosal lesions were more prevalent in beedi smokers and Hans tobacco chewers.

Oral mucosal lesions were more prevalent in subjects who started the habit at the age group of 16 to 25 years.

Most common reason for initiation of tobacco use was friends 72%.

Most common triggers for tobacco use was after meals with tea or coffee 60%.

The prevalence of oral lesions in tobacco users in this study was 52.6%.

Most common oral mucosal lesion was tobacco pouch keratosis 19%

Most common oral mucosal lesion in smoking form of tobacco use was smokers palate 26% and in smokeless form was tobacco pouch keratosis 42% and in both form of tobacco users tobacco pouch keratosis 49%.

CONCLUSION

Tobacco use in different forms is one of the prime factors responsible for potentially malignant disorders and cancerous lesions. Lack of awareness regarding harmful effects is a major reason. There was strong association of these habits with respect to frequency and duration and occurrence of the oral lesions. The most common age of starting the tobacco habit was between 16-25 years, awareness should be focussed in this age group. The most common influential factor was friends and the most common trigger factor was after meals and with tea or coffee and the tobacco cessation counselling should more focussed in those factors.

BIBLIOGRAPHY

- 1 Gururaj G, Girish N. Tobacco use amongst children in Karnataka. *Indian J Pediatr.* 2007; 74:1095-8
2. Gajalakshmi CK, Jha P, Ranson K, Nguyen S. Global patterns of smoking and smoking-attributable mortality. In: Jha P, Chaloupka FJ, editors. *Tobacco Control in Developing Countries.* New York, NY: Oxford University Press Inc; 2000. pp. 11–39.
3. International Institute for Population Sciences (IIPS), Mumbai. *Global adult tobacco Survey India (GATS India), 2009- 2010.* New Delhi; Ministry of Health and Family Welfare, Government of India; 2010.
4. Jha P, Chaloupka FJ, editors. *Curbing the Epidemic: Governments and the Economics of Tobacco Control.* Washington, D.C.: The World Bank; 1999.
5. New Delhi: Department of Statistics, Ministry of Planning, Government of India; 1998. National Sample Survey Organization (NSSO). A note on consumption of tobacco in India: NSS 50th Round, 1993-94. *Sarvekshana* 1998 January-March; pp. 76–89.
6. The MPOWER package, warning about the dangers of tobacco. Geneva: WHO, 2011. *WHO Report on The Global Tobacco Epidemic, 2011.*
7. Why is tobacco a public health priority? World Health Organization, December 1. 2004
8. Zaki A, Nafees Bano S, Zulkifle M. Prevalence of tobacco use among power loom workers – A cross-sectional study. *Indian J Community Med.* 2010; 35:34–9.

9. Gupta PC. Survey of sociodemographic characteristics of tobacco use among 99,598 Individuals in Bombay, India, using handheld computers. *Tob Control*. 1996; 5:114–20.
10. Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. Tobacco use in India: Prevalence and predictors of smoking and chewing in a national cross sectional household survey. *Tob Control* 2003;12:e4.
11. Goswami A, Reddaiah V, Kapoor S, Singh B, Dwivedi S, Kumar G. Tobacco and alcohol use in rural elderly Indian population. *Indian J Psychiatry*. 2005;47:192–7.
12. Neufeld KJ, Peters DH, Rani M, Bonu S, Brooner RK. Regular use of alcohol and tobacco in India and its association with age, gender, and poverty. *Drug Alcohol Depend* 2005; 77:283-91.
13. Saraswathi TR, Ranganathan K, Shanmugam S, Sowmya R, Narasimhan PD, Gunaseelan R. Prevalence of oral lesions in relation to habits: Cross-sectional study in South India. *Indian J Dent Res* 2006; 17:121-5.
14. Pratinidhi A, Gandham S, Shrotri A, Patil A, Pardeshi S. Use of ‘Mishri’ A smokeless form of tobacco during pregnancy and its perinatal outcome. *Indian J Community Med*. 2010; 35:148.
15. Gupta V, Yadav K, Anand K. Patterns of tobacco use across rural, urban, and urban- slum populations in a north Indian community, *Indian J Community*

Med, 2010, vol. 35 (pg. 245-51)

16. Ansari ZA, Bano SN, Zulkifle M. Prevalence of tobacco use among power loom workers – A cross-sectional study. *Indian J Community Med* 2010; 35:34-9.
17. Kasat V, Joshi M, Somaundaram KV, Viragi P, Dhore P, Sahuji S. Tobacco use, its influences, triggers, and associated oral lesions among the patients attending a dental institution in rural Maharashtra, India. *J Int Soc Prev Community Dent* 2012; 2:25-30.
18. Poornima Chandra , Poornima Govindraju. Prevalence of Oral Mucosal Lesions Among Tobacco Users. *Oral Health Prev Dent* 2012; 10: 149-153
19. Patil PB, Bathi R, Chaudhari S. Prevalence of oral mucosal lesions in dental patients with tobacco smoking, chewing, and mixed habits: A cross-sectional study in South India. *J Family Community Med.* 2013;20(2):130–5.
20. Sunil Surendraprasad Mishra, Lata Madhukar Kale. Prevalence of oral premalignant lesions and conditions in patients with tobacco and tobacco-related habits reporting to a dental institution in Aurangabad. . *J Indian Acad Oral Med Radiol* 2014;26:152-7
21. Aslesh OP, Paul S, Paul L, Jayasree AK. High prevalence of tobacco use and associated oral mucosal lesion among interstate male migrant workers in urban Kerala, India. *Iran J Cancer Prev* 2015;8:e3876.
22. Behura SS. Oral mucosal lesions associated with smokers and chewers—a case-control

study in chennai population. J Clin Diagnostic Res: JCDR. 2015;9(7):ZC17–22.

23. Ambrish Mishra, Divashree Sharma et al Pattern and prevalence of tobacco use and associated oral mucosal lesions: a hospital based cross sectional study at a tertiary care hospital in central India. Int J Res Med Sci. 2015 Sep;3(9).
24. Sujatha S. Reddy, Radha Prashanth et al Prevalence of oral mucosal lesions among chewing tobacco users: A cross-sectional study. Indian J Dent Res 2015;26:537-41.
25. Naveen-Kumar B, Tatapudi R, Sudhakara-Reddy R, Alapati S, Pavani K, Sai-Praveen KN. Various forms of tobacco usage and its associated oral mucosal lesions. J Clin Exp Dent. 2016;8:e172–7.
26. Ain TS, Gowhar O, Sultan S, et al. Prevalence of oral mucosal lesions and associated habits in Kashmir, India. Int J Res Med Sci 2016;4(8):3525-3530.
27. Joshi M, Tailor M. Prevalence of most commonly reported tobacco-associated lesions in central Gujarat: A hospital-based cross-sectional study. Indian J Dent Res 2016; 27:4059.
28. Sinha D, Gupta P, Pednekar M. Tobacco use in a rural area of Bihar, India. Indian J Community Med. 2003; 28:167–70.
29. Mohammed Junaid, Kalaiarasi. Patterns of tobacco usage among subjects with

potentially malignant oral lesions or conditions in Chennai city: A comparative study. J Can Res Ther 2017; 13:230-4

30. Jaiswal S, Srivastava R K, An assessment of prevalence of oral lesions and use of tobacco in the rural population of Uttar Pradesh. Iosrjournals 2017;4: 112-115
31. Hamna G, Farhana A Self perceived oral health status and cytomorphological changes in individuals with addictive oral habits: assessed by WHO oral health questionnaire for adults. Ijcmph. 2017;4(12): 4393
32. Divya M, Sumit K, Pan masala habits and risk of oral precancer: A cross-sectional survey in 0.45 million people of North India. j.jobcr. 2017 13-18.
33. Chaudhry K, Prabhakar A, Prabhakaran P, Prasad A, Singh K, Singh A. New Delhi: Final report of the study by the Indian Council of Medical Research and the WHO South East Asian Regional Office; 2001. Prevalence of tobacco use in Karnataka and Uttar Pradesh in India.
34. Kinra S, Bowen L, Lyngdoh T, Prabhakaran, et al. Sociodemographic patterning of non-communicable disease risk factors in rural India: a cross sectional study. BMJ. 2010; 341:c4974

ANNEXURE I

QUESTIONNAIRE

1. NAME: OP NO:
2. AGE: DATE:
3. ADDRESS :
4. EDUCATION :
5. OCCUPATION :
6. SOCIO – ECONOMIC STATUS :
7. MARITAL STATUS :
8. INCOME :

9. DETAIL OF TOBACCO USE :

SMOKING TOBACCO

- A. TYPE OF SMOKING
- B. AGE OF ONSET
- C. NUMBER OF TOBACCO USE PER DAY
- D. NUMBER OF YEARS OF REGULAR USE

SMOKELESS TOBACCO

- A. TYPE OF SMOKELESS
- B. AGE OF ONSET
- C. NUMBER OF TOBACCO PER DAY
- D. NUMBER OF YEARS OF REGULAR USE

10. WHICH WAS THE FIRST REASON TO INFLUENCE YOU TO USE TOBACCO

A. FRIENDS

B. STRESS

C. PARENTS

D. LONELINESS

E. CLEANING OF TEETH

F. OTHERS – (TOOTHACHE, ROLE MODEL, DRIVING, NIGHT SHIFT, STUDYING , MEDIAS)

11. WHICH ARE THE SITUATION TRIGGERS THE FEELING OF TOBACCO USE

A. AFTER MEALS

B. DURING MORNING TOILET

C. WORK RELATED

D. WITH COFFEE OR TEA

E. RELAXING F. TENSION

G. OTHERS - (SEEING OTHERS SMOKING/ CHEWING TOBACCO, STUDYING, WANTED TO STAY ALERT, DRINKING ALCOHOL, DRIVING)

12. PREVIOUS ATTEMPT AT QUITTING TOBACCO :

A. YES

B. NO

13. ALCOHOL USE

A. YES

B. NO

14. ORAL MUCOSAL LESION

A. NO LESION

B. LESION PRESENT

15. TYPE OF LESION

ANNEXURE III

ஒப்புக்கை வாக்குமூலம்

..... ஆகிய நான் மேற்கூறிய ஆராய்ச்சி படிப்பின் வழிமுறைகளைத் தெளிவாகப் புரிந்து கொண்டேன். மேலும் நான் இந்த ஆராய்ச்சிப் படிப்புக்கான வழிமுறைகளை மேற்கொள்வதற்கும், அதன் பரிசோதனை முடிவுகளை தெரிந்து கொள்ளவும் முழுமையாக அனுமதிக்கிறேன்.

.....
நோயாளியின் கையொப்பம்

தேதி.....

நான் மேற்கூறிய ஆராய்ச்சிப் படிப்பிற்கான விதிமுறைகள் மற்றும் அது குறித்த நோயாளியின் சந்தேகங்களையும் தெளிவாக விளக்கியுள்ளேன்.

.....
மருத்துவரின் கையொப்பம்

தேதி.....

ANNEXURE IV



INSTITUTIONAL ETHICAL COMMITTEE

KSR INSTITUTE OF DENTAL SCIENCE & RESEARCH

KSR Kalvi Nagar, Tiruchengode-637 215, Tamilnadu.
Phone : 04288-274981, Fax : 04288-274761,
email : ksr dentalcollege@yahoo.com

Chairman

Dr. P. PONMURUGAN, Ph.D.,

Prof. & Head Dept. of Biotechnology
KSR College of Technology,
KSR Kalvi Nagar, Tiruchengode.

Member Secretary

Dr. G.S. KUMAR, MDS.,

Principal,
KSR Institute of Dental Science & Research,
KSR Kalvi Nagar, Tiruchengode.

Members

Dr.G.Ayppadasan, Ph.D.,
Biotechnologist

Mr.A.Thirumoorthi, M.A.B.L.,
Human Activist

Dr.R.Renuka, M.D.S.,(Perio), M.Sc.,
Family Counsellor

Dr.K.Sivakumar, MDS.,(Cons.Dent.)

Dr.Suman, M.D.S.,(OMDR)

Dr.Sharath Ashokan, MDS.,(Pedo)

Dr.G.Rajeswari, Ph.D.,(Biochemistry)

Dr.K.Karthick, MDS.,(Cons.Dent.)

Mr.V.Mohan, M.Sc.,M.Phil.,(Physicist)

Mr.A.P.S.Raja, B.A.,
(Layperson)

Ref.: 108/KSRIDSR/EC/2015

Date : 19.12.2015

To

Dr.P.Anbalagan,
Postgraduate Student,
Dept. of Oral Medicine & Radiology,
KSR Institute of Dental Science & Research,

Your dissertational study titled "PREVALENCE OF ORAL LESIONS ASSOCIATED WITH TOBACCO USE AMONG PATIENTS VISITING K.S.R.INSTITUTE OF DENTAL SCIENCE & RESEARCH, TIRUCHENGODE – A CROSS SECTIONAL OBSERVATIONAL STUDY" presented before the ethical committee on 15th Dec. 2015 has been discussed by the committee members and has been approved.

You are requested to adhere to the ICMR guidelines on Biomedical Research and follow good clinical practice. You are requested to inform the progress of work from time to time and submit a final report on the completion of study.


Signature of Member Secretary
(Dr.G.S.Kumar)

Urkund Analysis Result

Analysed Document: Prevalence of oral lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode" - A cross sectional observational study.docx (D35213162)

Submitted: 2/1/2018 9:56:00 AM

Submitted By: dranbu2029@gmail.com

Significance: 7 %

Sources included in the report:

My Document.docx (D34123313)

Monika Patel Final Year PhD student, PSMC.pdf (D34834336)

final print.pdf (D34364146)

<http://tobacco.virgo.com.bd/shop/cigars/cigars/>

<http://www.ibrarian.net/navon/page.jsp?paperid=11360437>

<http://www.indiancancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aualast=Sridharan>

<http://www.ijdr.in/article.asp?issn=0970-9290;year=2016;volume=27;issue=4;spage=405;epage=409;aualast=Joshi>

<https://prezi.com/d1wqwrls-7yw/tabacco-project/>

Instances where selected sources appear:

21

CERTIFICATE – II

This is to certify that this dissertation work titled **PREVALENCE OF ORAL LESIONS ASSOCIATED WITH TOBACCO USE AMONG THE PATIENTS VISITING K.S.R. INSTITUTE OF DENTAL SCIENCES & RESEARCH, TIRUCHENGODE” - A CROSS SECTIONAL OBSERVATIONAL STUDY** of the candidate **Dr. P. ANBALAGAN** with registration number **241527401** for the award of **MASTER OF DENTAL SURGERY** in the branch of **ORAL MEDICINE AND RADIOLOGY**. I personally verified the urkund.com website for the purpose of plagiarism check. I found that the uploaded thesis file contains from introduction to conclusion pages and result shows 7 percentage of plagiarism in the dissertation.



5/2/18

Guide & Supervisor sign with Seal

**PROFESSOR / HOD
DEPARTMENT OF ORAL MEDICINE
K.S.R. INSTITUTE OF DENTAL
SCIENCE & RESEARCH,
TIRUCHENGODE - 637 215.**

Urkund Analysis Result

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issn=0019-

509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan

<http://www.ijdr.in/article.asp?>

issn=0970-9290;year=2016;volume=27;issue=4;spage=405;epage=409;aulast=Joshi

<https://prezi.com/d1wqwrls-7yw/tabacco-project/>

Instances where selected sources appear:

21

U R K U N D

INTRODUCTION Tobacco use in any form is one of the leading preventable causes of

morbidity and mortality in the world (1). Eighty-two percent of the world's 1.1 billion smokers

now reside in low- and middle-income countries where, in contrast to the declining consumption in high-income countries, tobacco consumption is on the rise(2).

Majority of

them used smokeless tobacco (164 million) and 42 million used both forms of tobacco.(3)

Tobacco has been used in both smoke and smokeless forms and its use in children and

adolescents are reaching pandemic levels. The studies have shown that around 82,000 –

99000 children / adolescents get addicted to this habit every day (4). It is estimated that more

than 150 million men and 44 million women in india use tobacco in various forms.

Prevalence

of tobacco use varies by area and gender; ranging from 12.8% in Punjab to 69.8% in Mizoram

in men , and >1% in Punjab to 61% in Mizoram in women (5)

0: Monika Patel Final Year PhD student, PSMC.pdf 95%

According to the World Health Organization (WHO) estimates , globally, there were 100

million premature death due to tobacco in the 20th century, and if the current trends of

tobacco use continue, this number is expected to rise to 1 billion in the 21st century (6).

Tobacco is the second major cause of death worldwide, and responsible for about 5million

deaths annually (7). This figure is expected to rise to 8.4 million by the year 2020, with 70% of

those deaths occurring in the developing countries (8). An estimated one million people die

every year due to tobacco related diseases in india. In order to reduce the impact of tobacco

related morbidity and mortality, we need combination of strategies aimed at avoiding initiation of tobacco by non-users and cessation of users.

As dentists we often come across patients with tobacco habits, and are in a stronger position

compared to other medical practitioners to counsel the patients regarding the adverse effects

of tobacco. Also, it is imperative for a dentist to be equipped with all behavioral facts that can

influence the tobacco habits in an individual, and all the epidemiological facts related to the

habit. Very few hospital based studies have been conducted to assess the prevalence of the

tobacco use and their epidemiological and behavioural patterns among patients with dental

needs.

Therefore, the present study was conducted to evaluate the prevalence of tobacco use

associated oral mucosal lesions among the patients in a rural set up and to elucidate the

associated factors. This information is required to develop and implement locally relevant

tobacco intervention strategies.

TOBACCO USE IN INDIA Smoking form of tobacco Beedi Crushed and dried tobacco is

wrapped in tendu or temburni leaf leaves and rolled into a beedi. Beedis are smaller in size

than the regular company-made cigarettes so more beedis are smoked to achieve the desired

feeling caused by nicotine. The frequent inhalation of tobacco flakes has similar effects as the

actual use of the tobacco product. Therefore, these families have an increased risk of lung

diseases and cancers of the digestive tract. And, addiction is common among these families.

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PUrevRalenKceU of oNral Dlesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental

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Cigarette A cigarette is a finely cut tobacco rolled in paper. Cigarettes may come with filters, as thins, low-tar, menthol, and flavoured – to entice more users. Many people view cigar smoking as less dangerous than cigarette smoking. Cigarette smoking is more common in the urban areas of India. Cigarette smoking is on the rise.

Cigar A cigar is a roll of tobacco wrapped in leaf of tobacco.

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Most cigars are made up of a single type of air-cured or dried tobacco. Cigar tobacco leaves

are first aged for

about a year and then fermented in a multi-step process that can take from 3 to 5 months.

Chillum: This involves smoking tobacco in a clay pipe. A chillum is shared by a group of

individuals, so in addition to increasing their risk of cancer, people who share a chillum

increase their chances of spreading colds, flu, and other lung illnesses. A chillum is also used

for smoking narcotics like opium. Hookah:

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The Hookah consists of a head, body water bowl and hose.

Hookah smoking involves a device that heats the tobacco and passes it through water before

it is inhaled. The tobacco is heated in the hookah usually using charcoal. According to a World

Health Organization advisory, a typical one-hour session of hookah smoking exposes the user

to 100 to 200 times the volume of smoke inhaled from a single cigarette. Even after passing

through water, tobacco smoke still contains high levels of toxic compounds.

It is not a safer way to use tobacco. The use of hookah was once on the decline, but it has

increased in recent years. Hookah is thought to be a sign of royalty and prestige and is

available in highpriced coffee shops in flavors like apple, strawberry, and chocolate.

It is

marketed as a "safe" recreational activity, but it is not safe and is finding increasing use

among college students.

Chutta smoking and reverse chutta smoking: Chuttas are coarse tobacco cigars that are

smoked in the coastal areas of India. Reverse chutta smoking involves keeping the burning

end of the chutta in the mouth and inhaling it. This practice increases the chance of oral

cancer.

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Pipe Pipes are often reusable and consist of a chamber or bowl, stem and mouthpiece.

Tobacco is placed into the bowl and lit. The smoke is then drawn through the stem and mouthpiece and inhaled.

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Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode” - A cross sectional observational study.docx (D35213162)

Smokeless form of tobacco Tobacco or tobacco-containing products are chewed or sucked as

a quid, or applied to gums, or inhaled.

Khaini: This is one of the most common methods of chewing tobacco. Dried tobacco leaves

are crushed and mixed with slaked lime and chewed as a quid. The practice of keeping the

quid in the mouth between the cheeks and gums.

Gutkha: It is very popular among teenagers because it is available in small packets (convenient

for a single use), uses flavouring agents and scents, and is inexpensive (as low as Re 1/-

equivalent to 2 cents). Gutkha consists of areca nut (betel nut) pieces coated with powdered

tobacco, flavoring agents, and other “secret” ingredients that increase the addiction potential.

Paan with tobacco: The main ingredients of paan (betel quid) are the betel leaf, areca nut,

slaked lime. Sweets and other condiments can also be added.

Paan masala: Paan masala is a commercial preparation containing the areca nut, slaked lime,

and catechu, with or without powdered tobacco. It available in attractive sachets and tins.

Mishri, gudakhu and toothpastes: Mishri is roasted tobacco powder that is applied as a

toothpowder. Gudakhu is a paste of tobacco and sugar molasses. These preparations are

commonly used by women and direct application of tobacco to the gums.

Mawa: This is a combination of areca nut pieces, tobacco, and slaked lime that is mixed on the

spot.

Dry snuff: This is a mixture of dried tobacco powder and some scented chemicals. It is inhaled

and is common in the elderly population of India. Snuff is responsible for cancers of the nose

and jaw.

REVIEW OF LITERATURE

Prakash C Gupta (1996)9 conducted a

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survey of sociodemographic characteristics of tobacco use among 99598 individuals in

Bombay, India using handheld computers.

Permanent residents of Bombay aged 35 years and older with use of tobacco in various

smoking and smokeless forms were included in this study. The results showed that prevalence

of tobacco use among the woman was high (57.5%) but almost solely in the smokeless form.

Among men 69.3% reported current tobacco use and 23.6% were smokers. The most common

smokeless tobacco practice among women was mishri use (44.5%) and among men betal

quid with tobacco (27.1%). About half of smokers used bidi and half smoked cigarettes.

Educational level was inversely associated with tobacco use of all kinds except cigarette

smoking.

4

Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental

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M Rani, S Banu et al. (2003)¹⁰ estimated the prevalence and the demographic correlates of

tobacco consumption in India in a national cross sectional household survey. Total of 315598

individuals 15 years or older from 91196 households were sampled in NFHS -2 survey

(1998-1999). The results showed that 47% men and 14% of women either smoked or chewed

tobacco.

Anil Goswami, V P Reddaiah et al. (2005)¹¹ conducted a study on tobacco and alcohol use in

rural elderly Indian population. The prevalence of smoking was 71.8% in men and 41.4% in

women. Regular alcohol intake was 16.3% of the men and with 0.8% of the women.

Neufeld K J, D H Peters et al. (2005)¹² conducted a study on

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regular use of alcohol and tobacco in India and its association with age, gender, and poverty.

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people over the age of 10 years were sampled in National Health Survey (1995-96).

The

national prevalence of regular use of smoking tobacco is estimated to be 16.2%, chewing

tobacco 14% and alcohol 4.5%. Men were 25.5 times more likely than women to report regular

smoking, 3.7 times more likely to regularly chew tobacco, and 9.7 times more likely to regularly use alcohol.

Saraswathi TR, Ranganathan K et al (2006)¹³ studied the prevalence of oral lesions in relation to habits. A hospital based cross-sectional study was carried out at Ragas Dental college, Chennai, India. Duration of the study was three months in 2004. Results showed that prevalence of oral soft tissue lesions was found in 4.1% of the study subjects, the prevalence of leukoplakia, OSF and oral lichen planus was 0.59%, 0.55% and 0.15% respectively. The prevalence of smoking, drinking alcohol beverages and chewing was 15.02%, 8.78% and 6.99% respectively.

Asha Pratinidhi, Sudesh Gandham et al (2010)¹⁴ studied the effects of Mishri use on the fetus during pregnancy and the perinatal outcome, and stopping its use. Results showed that 30.9% pregnant women were using Mishri. The complications during the pregnancy and the number of stillbirths were significantly more among Mishri users. Babies of who stopped/reduced consumption of Mishri (28.8%) were significantly benefited.

Vivek Gupta, Kapil Yadav et al (2010)¹⁵ studied the pattern of tobacco use across rural, urban, and urban-slum populations in a North Indian Community (Faridabad, Haryana).

Result showed that tobacco use among male was 35.2% urban, 48.3% urban-slum, and 52.6% in rural. Tobacco use among female was 3.5% urban, 11.9% urban-slums, and 17.7% rural.

More males reported daily bidi smoking than cigarette use. Females using smoked tobacco were almost exclusively using bidis (urban 1.7%, 7.9%, 11% in rural). Daily use of chewed tobacco low in females than males.

5

Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode" - A cross sectional observational study.docx (D35213162)

Zaki Anwar Ansari, S Nafees Bano, et al (2010)¹⁶ have done a study on the prevalence of tobacco use among power loom workers in Allahabad, India. 448 workers were interviewed through a questionnaire survey. Prevalence of tobacco use was 85.9%, the prevalence of smoking and tobacco chewing were 62.28% and 66.07% respectively. Smoking was more

common in the elderly, while chewing tobacco was popular among younger age group.

V Kasat, M Joshi et al (2012)¹⁷ estimated the prevalence of

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tobacco use, its influences, triggers, and associated oral lesions among the patients of Rural dental college and hospital Loni, Maharashtra, India, in a hospital based crosssectional

study. The results showed that the overall prevalence of tobacco use was 16.38%. Smokeless form of tobacco use was more prevalent in both males (81.84%) and females

(100%). About 76.09% and 31.25% females developed the habit due to initial influence of

friends. The most common oral mucosal lesion in both the males (42.20%) and females

(11.07%) was tobacco hyperkeratosis. Most common trigger for tobacco use was work

related (69.14%) in males and after meals (53.13%) in females.

Poornima Chandra , Poornima Govindraju.(2012)¹⁸ estimated the prevalence of oral mucosal

lesions among tobacco users. A hospital based cross-sectional study was conducted among

patients visiting the Rajarajeswari Dental College and Hospital, Bangalore, India. The

prevalence of tobacco habit was 23.5%. The prevalence of oral mucosal lesions was (73.8%).

Leukoedema was the most prevalent lesion. Leukoplakia was found in 3.5% of the patients.

Malignancy was found only among chewers.

Prashant B. Patil, Renuka Bathi et al (2013)¹⁹ estimated the prevalence of oral mucosal lesions

in dental patients with smoking, chewing, and mixed habits. A hospital based cross-sectional

study was conducted among patients visiting the SDM Dental College, Dharwad, Karnataka. A

total of 2400 subjects (1200 subjects with and 1200 subjects without habits). Oral mucosal

lesions were found in 322 (26.8%) subjects who had tobacco smoking and chewing habits. Oral

leukoplakia (8.2%) and oral submucous fibrosis (OSF) (7.1%) were the prevalent oral mucosal

lesions.

Sunil Surendraprasad Mishra, Lata Madhukar Kale et al (2014)²⁰ estimated the . Prevalence of

oral premalignant lesions and conditions in patients with tobacco and tobacco-related habits.

A hospital based cross-sectional study conducted among the patient visiting Chatrapati Shahu

Maharaj Shikshan Sanstha's Dental College, Aurangabad, Maharashtra India. The results showed that areca nut was the most popular product among young adults. The survey data suggested that only few of the patients had tried to stop these adverse habits at some point in their lives. The most common reason for this was, advice given by the dentist after the patients were made aware of these lesions.

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Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode” - A cross sectional observational study.docx (D35213162)

Ottapura Prabhakaran Aslesh, Sam Paul et al (2015)²¹ estimated the prevalence of use of tobacco and also the prevalence of oral mucosal lesions among adult male interstate migrants workers in Urban North Kerala (Kannur), India. Total of 244 male migrant workers above 18 years attending routine health check-up camps were interviewed through a questionnaire. The results showed that the prevalence of current use of smoked tobacco, smokeless tobacco and alcohol use were 41.8%, 71.7% and 56.6% respectively among migrants. Oral mucosal lesions were seen in 36.3% of participants. Among smokeless tobacco users 44.6% had lesions.

Shyam Sundar Behura, Mahaboob Kader Masthan et al (2015)²² studied the association of oral mucosal lesions in a group of Chennai population aged 15 years and above with smoking and chewing habits. 450 subjects were included in this study. The results showed that 78% of subjects smoked and/or chewed for more than 10 years as compared to 37.4% of the control group. Smokers melanosis was the most common oral mucosal lesion followed by oral submucous fibrosis and leukoplakia.

Amrisha Mishra¹, Divashree Sharma et al (2015)²³ estimated the Pattern and prevalence of tobacco use and associated oral mucosal lesions among the patients of Shyam Shah Medical College, Rewa, Madhya Pradesh, India. The results showed that the overall prevalence of tobacco use was 24.78%. Smoking form was the most commonly used tobacco for males (44.56%) while smokeless tobacco was preferred by majority of females (69.12%). Oral mucosal lesions were seen in 32.51% subjects.

Sujatha S. Reddy, Radha Prashanth et al (2015)²⁴ estimated the prevalence of oral mucosal lesions among chewing tobacco users. A population-based cross-sectional study was conducted among a randomized cluster sample of adults in low-income group (slums), of Bengaluru North, Karnataka state, India. The results showed that 44.1% showed mucosal changes. The most common finding was chewers mucositis (59.5%) followed by submucous fibrosis (22.8%), leukoplakia (8%), lichenoid reaction (6.5%), oral cancer (2.7%), and lichen planus (0.5%).

Boddu Naveen Kumar, Ramesh Tatapudi et al (2016)²⁵ studied

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various forms of tobacco usage and its associated oral mucosal lesions among the patients attending Vishnu Dental College Bhimavaram, Andhra Pradesh, India, in a cross-sectional observational study. Total of 450 patients divided in to three groups based on type of tobacco use. Results showed that reverse smoking was more prevalent among old females with smoker's palate and carcinomatous lesions being the most common. Conventional smoking was more prevalent in males with maximum occurrence of leukoplakia and tobacco associated melanosis. Oral submucous fibrosis, quid induced lichenoid reaction were noticed in smokeless tobacco habit group.

Tasneem S Ain, Owais Gowhar et al (2016)²⁶ studied the prevalence of oral mucosal lesions and associated habits in 2 Government Hospitals in Srinagar and Pulwama district, Kashmir,

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PURVALANKCEU of ORAL LESIONS associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode" - A cross sectional observational study.docx (D35213162)

India. The results showed that the prevalence of oral mucosal lesion was found to be 8%.

Smoker's palate was the most frequently found oral lesion (33.89%). The most prevalent habit was cigarette smoking (56.46%).

Manjiri Joshi, Mansi Tailor (2017)²⁷ estimated the

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prevalence of most commonly reported tobacco- associated lesions in central Gujarat.

Total of 60,018 patient attending the Department of Oral Medicine and Radiology of Manubhai

Patel Dental College and Hospital, Vadodara, Gujarat, from January 2013 to December 2014

were screened. Results showed that

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94%

maximum cases having habit of smokeless tobacco (37.9%) and smoking tobacco (36.5%).

The overall prevalence was found to be 7.98%.

Jastin Gupta, Swarnalatha J et al (2017)²⁸ studied the prevalence of tobacco in Darbhanga ,

Bihar, India. They conducted a hospital based cross-sectional study. Results showed that

overall prevalence of tobacco use was 16.69%, out of which 14.48% were males and 2.21%

females. The majority of individuals were addicted due to peer pressure and friends. Females

frequently used smokeless for cleaning teeth. The most common oral lesion in both males

(53.26%) and females (18.55%) was tobacco hyperkeratosis.

Mohammed Junaid, Kalaiarasi et al (2017)²⁹ studied the pattern of tobacco usage among

subjects with potentially malignant oral lesions or conditions in Chennai city, India. A comparative study. Total of 120 subjects were divided in to two groups. Results showed that

cases with leukoplakia had a mean Fagerstrom nicotine dependence scores (FNTD) when

compared to the control group. The most common form of smokeless tobacco used by case

(OSMF) subjects was found to be mawa (53%). Mean FNTD scores of mawa users were higher

than other tobacco users in both case and control group.

Jaiswal S, Srivastava R K et al (2017)³⁰ studied the prevalence of oral lesions and use of

tobacco in the rural population of Uttar Pradesh, India. A total of 2551 subjects were recruited

in the study. Results showed that the prevalence of tobacco chewing was 45.21% .

Oral

submucous fibrosis was the most common lesion.

Hamna Gul, Farhana Asif et al (2017)³¹ studied the self-perceived oral health status and

cytomorphological changes in individuals with addictive oral habits. The study conducted in

Punjab, Pakistan. Results showed that soft drink usage was associated with epithelial atypia,

marijuana usage was associated with inflammatory infiltrate on cytology and snuff/niswar

usage was associated with inflammatory atypia.

Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode” - A cross sectional observational study.docx (D35213162)

Divya Mehrotra, Sumit Kumar et al (2017)³² conducted a study on pan masala habits and risk of oral precancer. A cross-sectional community based study conducted at Lucknow, Uttar Pradesh. 0.45 million subjects were surveyed. Results showed that the prevalence of oral precancer was 3.17% in non tobacco pan masala users and 12.22% in tobacco users.

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TOBACCO ASSOCIATED ORAL MUCOSAL LESIONS

Long term contact of tobacco with the oral mucosa induces variety of changes which could

be due to the carcinogen itself or as a protective mechanism of the oral cavity. These changes

could be categorized as tobacco induced oral mucosal lesions which are less likely to cause

cancer, lesions that are potentially malignant and tobacco induced malignancies.

TOBACCO INDUCED NON-NEOPLASTIC ORAL MUCOSAL LESIONS

The tobacco induced mucosal lesions which are less likely to cause cancer are leukoedema,

smoker's palate, lichenoid reaction, smoker's melanosis, tobacco pouch keratosis, palatal

erythema

and palatal erythema with hyperplasia . LEUKOEDEMA

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Leukedema is a chronic white mucosal condition in which the oral mucosa has a grey opaque

appearance. When the mucosa is stretched, the lesions disappear and reappear on releasing

the mucosa. It develops due to piling of spongy cells.

Unlike leukoplakia, leukoedema does not present a keratinized surface.

SMOKER'S PALATE Smoker's palate is also known as leukokeratosis nicotina

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palate and is a common reaction of palatal mucosa to smoking. Clinically the lesion appear as

diffuse white patch with numerous excrescences having central red dots

corresponding to

minor salivary gland ducts.

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P^Urev^Ralen^Kce^U of o^Nral D^Iesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode” - A cross sectional observational study.docx (D35213162)

These lesions are more prevalent in men due to increased usage of tobacco smoke among them.

LICHENOID LESIONS Lichenoid lesions grossly resembles oral lichenplanus but have certain

specific differences. The

lesion is characterized by the presence of fine, white, wavy parallel lines that do not overlap

or criss-cross,

is not elevated. The lesion generally occurs at the site of quid placement..

SMOKERS MELANOSIS

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Oral pigmentation secondary to smoking may occur at any site with increased tendency to

affect facial gingiva. The frequency of the lesions increases with heavy usage of beedi and cigarette smoke.

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It has been suggested that melanin production in the oral mucosa of smokers serves as a

protective response against some of the harmful substances in tobacco smoke.

TOBACCO INDUCED POTENTIALLY MALIGNANT DISORDERS

LEUKOPLAKIA

Leukoplakia is defined as a

predominantly white lesion or plaque affecting the oral mucosa

that cannot be characterized clinically or histopathologically as any other disease and is not associated with any other physical or chemical

agents except tobacco. Leukoplakia is

the term used to recognize

white plaques of questionable risk having excluded other known diseases or disorders that

carry no increased risk

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of cancer. A biopsy is mandatory. A definitive diagnosis is made when any etiological cause

other than tobacco/areca nut use has been excluded and histopathology has not confirmed any other specific disorder.

Leukoplakia is considered as a potentially malignant disorder with a malignancy conversion rate ranging from 0.1% to 17.5%. In India, the prevalence of leukoplakia varies from 0.2% to 5.2% and malignant transformation ranges between 0.13% and 10% according to various studies.

Leucoplakia

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may regress spontaneously or persist, recur or progress to cancer (Axell & Henricsson, 1981).

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ERYTHROPLAKIA

Erythroplakia is an uncommon but severe form of precancerous lesion defined by WHO as

“any lesion of the oral mucosa that presents as bright red velvety plaques which cannot be

characterized clinically or histopathologically as any other recognizable condition”.

Prevalence rate in India is 0.02%.

TOBACCO POUCH KERATOSIS

Chewing of tobacco or dipping snuff leads to the the development of a white mucosal lesion in

the area of tobacco contact, It also called as smokeless tobacco keratosis or snuff dipper's

keratosis. While these lesions are accepted as precancerous, they are significantly different

from true leukoplakia and have a much lower risk of malignant transformation.

ORAL SUBMUCOUS FIBROSIS

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Oral submucous fibrosis as a potentially malignant disease was first described in 1950's. It is

a chronic disorder characterized by fibrosis of the lining mucosa of the upper digestive tract

involving the oral cavity, oro- and hypopharynx and the upper third of oesophagus.

The

fibrosis involves the lamina propria, submucosa and may extend into the underlying musculature, resulting in limited mouth opening.

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PUrevRalenKceU of oNral Dlesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental

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Areca nut has been proved to be the single most important etiological factor responsible for OSMF. The pre-cancerous nature was first described by Paymaster in 1956 that was later confirmed by various studies. A malignant transformation rate was shown to be in the range of 7 to 13%. Previous data indicated that the prevalence of OSMF was in the range of 0.03% to 3.2%. The incidence is progressively increasing owing to the excessive usage of areca nut among various groups of population.

PALATAL CHANGES AMONG REVERSE SMOKERS

The term "palatal changes" describes the reaction of the palatal mucosa to reverse chutta smoking. This form of smoking evokes diverse alterations in the palatal mucosa (palatal keratosis, excrescences, patches, red areas, ulcerations, and palatal pigmentation). These changes have increased tendency for malignant transformation.

ORAL LICHEN PLANUS LIKE LESION

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Lichen planus is a mucocutaneous disorder affecting the skin and mucous membrane.

Oral lichen planus-like lesion consists of white, wavy, parallel, non-elevated striae that do not crisscross as in lichen planus. Betel-quid chewing is strongly associated with this lesion.

However, if the betel-quid chewing habit is discontinued, most of the lesions regress.

AIM AND OBJECTIVES Aim of the study The aim of this study was to estimate the prevalence of

oral lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental

Sciences & Research, tiruchengode.

Objectives The main objective of this study was to estimate the prevalence of tobacco, its

influences, triggers, and associated oral lesions and use the data for further studies and to

augment the efforts of counselling the patients for tobacco cessation.

MATERIALS & METHODS

A hospital based cross sectional study.

Duration - 1 year (November 2016 – October 2017).

All the patients who attended the outpatient department of Oral Medicine and Radiology at

K.S.R. Institute of Dental Sciences & Research and tobacco consumption were included in this

study

All the patients who reported to the Department of Oral Medicine Radiology (69353) were

questioned to select the patients who consume tobacco in any form. The 2835 patients who agreed to have the habit of tobacco smoking and/or smokeless, were included in the study after obtaining a written informed consent.

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Prevalence of Oral Lesions associated with tobacco use among the patients visiting K.S.R. Institute of Dental Sciences & Research, Tiruchengode” - A cross sectional observational study.docx (D35213162)

All the patients were interviewed through a pre-tested structured questionnaire to collect data

like age, sex, education, occupation, and socio-economic status, form of tobacco, age of onset, frequency, duration, reason for initiation, triggers for tobacco use, any previous attempt to quit the habit and alcohol use.

The patients were clinically examined for any tobacco related oral lesions.

RESULTS

In the study population of 69353 subjects were reported to dental OPD for some dental

problem, out of which 2835 (4.08%) subjects were found to have tobacco consumption habits.

Among them 2573 (90.8%) were males and 262 (9.2%) were females (Table 1).

1. Table for tobacco use in relation to sex

Gender	Frequency	Percent
Male	2573	90.8
Female	262	9.2
Total	2835	100

Tobacco related oral mucosal lesions were seen in 1492 (52.6%) subjects, out of which 1371

were males and 262 were females (Tables 2).

2. Table for relation between sex and lesions

Gender	Presence of Lesions	Total
Lesions Present	Male	1371
	Female	262
No Lesion	Male	1202
	Female	141
Total		2835

In the study population, 25.6% of the tobacco users were in the age group of 51- 60 years,

followed by 21- 30 age group with 21.9% subjects and 41- 50 age group with 21.3% subjects .

For males the most common age group was 51- 60 years with 24.1% subjects followed by 21-

30 years with 23.9% subjects and 41- 50 age group with 21.5% subjects. For females tobacco

users, the most common age group was 51-60 years with 40.8% subjects followed by above 60

years with 18.2% subjects and 41-50 age group with 18.7% subjects (Table 3). In the study

population, 34% of oral mucosal lesions were present in the 51- 60 years age group followed

by 41- 50 years age group with 25.9% of lesions present and 31- 40 years age group with 16%

of lesion present. For males, oral lesions were more prevalent in 51- 60 years age group with

33.4% followed by 41- 50 years with 25.8% lesions and 31- 40 age group with 16.3% lesions.

For females oral lesions were more prevalent in 51- 60 age group with 41.3% followed by 41-

50 years with 26.4% lesions and above 60 years group with 18.2% lesions (Table 3).

The

difference between the prevalence of tobacco use and oral lesions in relation to their age and

gender was statistically highly significant ($\chi^2 = 18.187$; $P > 0.03$)

In the present study population, 33.7% tobacco consumers were secondary level of school

education followed by 27% were primary level of education. For males 36.4% subjects were

secondary level of school education followed by 27.5% subjects were graduate. For females

46.9% subjects were illiterate followed by 46.2% subjects were primary level of school

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education (Table 4). In the study population, 39% of oral mucosal lesions were in subjects with

secondary school education followed by 35% lesions which were in subjects with primary

school education. For males, oral mucosal lesions were more prevalent in subjects with

secondary level school education (42.1%) followed by subjects with primary education (33.8).

For females, oral mucosal lesions were more prevalent in subjects with illiterate group (46.9%)

followed by primary education (46.2%) (Table 4).). The difference between the prevalence of

tobacco use and oral lesions in relation to their education and gender was statistically highly

significant ($\chi^2 = 188.29$; $P > 0.001$) . Tobacco use was prevalent across all the occupational

groups, majority of tobacco consumers were labourers (20.6%) followed by farmers (20%)

and business persons (19%). In males, the prevalence of tobacco use was highest in business

persons (20.7%) followed by labourers (20.2%). Where as in females it was highest in farmers

(43.1%) followed by housewives (26.7%) (Table 5). In the study population, 27.5% oral mucosal

lesions were seen in labourers followed by farmers (23.3%) and business persons (16%). In males the oral lesions were more prevalent in labourers (28.2%), followed by farmers (21.9%). In females, lesions were more prevalent in farmers (38.8%) followed by housewives (36.4%) (Table 5). The difference between the prevalence of tobacco use and oral lesions in relation to their occupation and gender were statistically highly significant ($\chi^2 = 565.61$; $P > 0.001$).

3. Table for prevalence of tobacco use and oral mucosal lesions in relation to age and gender

Gender

Male Female

Presence of Lesions Total Presence of Lesions Total

Lesions Present No Lesion Lesions Present No Lesion Age Up to 20 N 38 109 147

% 2.8 9.1 5.7

21 - 30 N 149 465 614 66

% 10.9 38.7 23.9 5.0 2.3

31 - 40 N 224 176 400 11 21 32

% 16.3 14.6 15.5 9.1 14.9 12.2

41 - 50 N 354 200 554 32 17 49

% 25.8 16.6 21.5 26.4 12.1 18.7

51 - 60 N 458 161 619 50 57 107

% 33.4 13.4 24.1 41.3 40.4 40.8

Above 60 N 148 91 239 22 46 68

% 10.8 7.6 9.3 18.2 32.6 26.0 Total N 1371 1202 2573 121 141 262

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% 100.0 100.0 100.0 100.0 100.0 100.0

4. Table for prevalence of tobacco use and oral mucosal lesions in relation to education and

gender

Gender

Male Female

Presence of Lesions Total Presence of Lesions Total

Lesions Present No Lesion Lesions Present No Lesion Education Illiterate N 124 48

172 55 68

123

% 9.0 4.0 6.7 45.5 48.2 46.9

Primary N 463 185 648 60 61 121

% 33.8 15.4 25.2 49.6 43.3 46.2

Secondary N 577 359 936 6 12 18

% 42.1 29.9 36.4 5.0 8.5 6.9

Higher Secondary N 60 49 109

% 4.4 4.1 4.2

Graduate N 147 561 708

% 10.7 46.7 27.5 Total N 1371 1202 2573 121 141 262

% 100.0 100.0 100.0 100.0 100.0 100.0

5. Table for prevalence of tobacco use and oral mucosal lesions in relation to occupation and

gender

Gender

Male Female

Presence of Lesions Total

Presence of Lesions Total

Lesions Present No Lesion Lesions Present No Lesion Occupation Farmer N 300

148 448 47 66

113

% 21.9 12.3 17.4 38.8 46.8 43.1

Labour/Coolie N 387 134 521 24 39 63

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% 28.2 11.1 20.2 19.8 27.7 24.0

Business N 238 295 533

% 17.4 24.5 20.7

Driver N 142 77 219

% 10.4 6.4 8.5

Student N 88 423 511

% 6.4 35.2 19.9

House Wife N 44 26 70

% 36.4 18.4 26.7

Tailor/Weaver N 178 69 247 6 10 16

% 13.0 5.7 9.6 5.0 7.1 6.1

Professional & Teacher N 38 56 94

% 2.8 4.7 3.7 Total N 1371 1202 2573 121 141 262

% 100.0 100.0 100.0 100.0 100.0 100.0

In the study population, 52.7% of the subjects had no or less than 5000 income per month. In

males 48.1% were less than 5000 income. Whereas 97.7% of females were no or less than

5000 income (Table 6). The oral mucosal lesions were more prevalent among the low

economic status (56%). In males 45.2 % of lesion present in subjects with low economic status.

In females 100% lesion were seen in poor people (Table 6). The difference between the

prevalence of tobacco use and oral lesions in relation to their income and gender was

statistically highly significant ($\chi^2 = 133.46$; $P > 0.001$).

6. Tables for prevalence of tobacco use and oral mucosal lesions in relation to income and

gender

Gender

Male Female
 Presence of Lesions Total Presence of Lesions Total
 Lesions Present No Lesion Lesions Present No Lesion Income > 5000 N 620 617
 1237 121 135
 256
 % 45.2 51.3 48.1 100.0 95.7 97.7
 16

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5000 -10000 N 510 323 833 6 6
 % 37.2 26.9 32.4 4.3 2.3
 <10000 N 241 262 503
 % 17.6 21.8 19.5 Total N 1371 1202 2573 121 141 262
 % 100.0 100.0 100.0 100.0 100.0 100.0

In the present study, smoking form of tobacco was used by 1586 (56%) subjects; smokeless forms were used by 838 (30%) subjects. The dual use of both forms was reported in 14% of the subjects. In present study subjects in smoking form and subjects with both form of tobacco use were 100% males. Whereas females were 100% using smokeless tobacco (Table 7A). The difference between the prevalence of tobacco use in relation to their form of tobacco use and gender was statistically highly significant ($\chi^2 = 687.94$; $P > 0.001$). In the present study, 49% subjects with smoking form of tobacco user were presented with oral mucosal lesions, in smokeless form user 55% subjects presented with lesions and 60% of oral lesions presented in both form tobacco users (Table 7B). The difference between the prevalence of tobacco use and oral lesions in relation to their form of tobacco use and gender was statistically highly significant ($\chi^2 = 16.85$; $P > 0.001$). 7A. Table for form of tobacco use in relation to gender

Gender	Form of Tobacco Use	Total	Chi square	p																	
Smoking Tobacco	Smokeless Tobacco	Both	N	%																	
N	%	N	%	N	%	Male	1586	100	576	69	411	100	2573	91	687.94	> 0.001**	Female	262	31	262	9

Total 1586 100 838 100 411 100 2835 100

7B. Table for form of tobacco use and prevalence of lesions

Presence of Lesions	Form of Tobacco Use	Total	Chi square	p																	
Smoking Tobacco	Smokeless Tobacco	Both	N	%																	
N	%	N	%	N	%	Lesions Present	784	49	463	55	245	60	1492	53	16.85	> 0.001**	No Lesion	802	51	375	45

375 45 166 40 1343 47 Total 1586 100 838 100 411 100 2835 100

In types of tobacco user, 1997 subjects were smokers (combination of subjects in smoking form of tobacco users – 1586 and smoking form of tobacco users in both form tobacco users -411), 1249 subjects were tobacco chewers (combination of subjects in smokeless form of tobacco user – 838 and smokeless form of tobacco user in both form tobacco user – 411). In the present study, 962 subjects were cigarette smokers followed by 911 subjects were beedi smokers and 662 subjects were Hans tobacco chewers. Majority of oral lesions were present in beedi smokers (34%) followed by Hans tobacco chewers (14%) and cigarette smokers (10%). In the smokers group, 48% were cigarette smokers followed by beedi smokers (45.6%). Majority of lesions present in subject beedi smokers (66%). In the tobacco chewers, 53% were Hans tobacco chewers followed by betel quid and tobacco chewers (36%). Majority of lesions in

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males were present in Hans tobacco chewers (67.8). In females 98% were betel quid with tobacco chewers. 100% of lesions present in betal quid with tobacco chewers (Table 8).

8. Table for different type of tobacco user and prevalence of oral mucosal lesions
 Male Female Total

Lesions Present No Lesion Lesions Present No Lesion Tobacco Smokers Beedi 683 228 911

1997

Cigarette 286 676 962

Both 60 59 119

Others 5 5 Tobacco Chewers Betel quid With Tobacco 117 70 121 137 445 1249

Gutka 67 65 132

Khaini/Hans 398 260 4 662

Others 5 5 10

In the smokers group, 60% of subjects had started the tobacco habit around the age of 16-25

years, 15% of them at or before 15 years. Majority of lesions (54.4%) were present with

subjects who start the habit around the age of 16-25 followed by 29.2% in subjects at or

before 15 years. In tobacco chewers group, 51.7% of males have started the habit around the

age of 16-25 followed by 22.4% subjects at or before 15 years. In males majority of lesions

(45.7%) were present in subjects start the habit around the age of 16-25. In females 32% have

started the habit around 16-25 years followed by 19% in 26-35 age of onset. In females

majority of lesions (35.5%) presented in subject with age of onset 16-25 (Table 9).

9. Table for age of set for different type of tobacco use and prevalence of oral mucosal lesions

Gender Age of Onset Total

Up to 15 16 -25 26 - 35 36 - 45 46 - 55 56 - 65

YES NO YES NO YES NO YES NO YES NO YES NO ST Male 301 182 560 632

118 128 45 20 5 6 0 0

1997 CT Male 75 29 268 242 154 67 56 52 29 10 5 0 987

Female 11 35 43 42 34 16 16 27 17 21 0 0 262 ST – Tobacco smokers, CT –

Tobacco chewers,

YES – Lesions present, NO – No lesion. In the present study, subjects were divided in to three

groups according to the frequency of tobacco use 1.Mild (>5 times) 2.Moderete (6-20 times)

3.Severe (<20 times) In smokers group, 51% were mild tobacco users and majority oral

mucosal lesions (54.4%) were present in moderate tobacco users. In male tobacco chewers,

71% of subject were mild tobacco users with 76.6% had oral mucosal lesions. In female 87% of

subject were mild tobacco users with 90% had oral mucosal lesions (Table10)

10.Table for

frequency of different type of tobacco use and prevalence of oral mucosal lesions 18

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Frequency Total

Gender Up to 5 Mild 6 – 20 Moderate Above 20 Severe

Lesions Present No Lesion Lesions Present No Lesion Lesions Present No Lesion Tobacco

smokers Male 365 658 560 283 104 27 1997 Tobacco chewers Male 450 354 126 46 11 0 987

Female 109 119 12 22 0 0 262

In smokers group, 37.6% subjects had less than 5 years of tobacco use followed by 11-20 years

tobacco user group (22%). Majority of oral lesions (28.4%) were present in 11-20 years tobacco

users followed by 22.5% in more than 30 years of tobacco users group. In male chewers 51%

subjects were less than 5 years of tobacco use followed by 5-10 years tobacco user group.

Majority of oral lesions (45%) in male chewers were less than 5 years of frequency. In females

33% were greater than 30 years of tobacco use followed by 26% of subjects with less than 5 years (Table 11).

11. Table for duration of tobacco use

Duration Total

Gender > 5 5 - 10 11 - 20 21 - 30 Above 30

Lesions Present No Present Lesions Present No Lesion Lesions Present No Lesion Lesions

Present No Lesion Lesions Present No Lesion ST Male 195 557 138 133 293 156 171 86 232 36

1997 CT Male 269 235 168 64 81 71 32 10 37 20 987

Female 44 25 16 44 22 6 12 6 27 60 262

In maximum number of tobacco users (72%), the habit was initiated by friends, in 10% they

were initiated to practice the habit during driving and night shift. In males 75% were influenced by friends followed by during driving and night shift (11%). In females 41% have

started the habit due to toothache followed friends (37%) and family (18%) (Table12). The

difference between influencing factors and gender was statistically highly significant ($\chi^2 =$

86.304; $P > 0.001$) . 12. Table for influencing factors tobacco use Influence Male Female Total

N % N % N % Friends 19 42 75 97 37 20 39 72 Stress / Loneliness 120 5 10 4 130 5 Parents /

Family 58 2 48 18 106 4 Driving / Night Shift 280 11 280 10 To Style / Fashion / Follow Role

Model 107 4 107 4 Toothache 26 1 107 41 133 5 Work Related 11 0 11 0 Others 29 1 29 1 Total

2573 100 262 100 2835 100

Most common trigger for tobacco use was after meals or with tea/coffee (60%) followed by

during free time or relaxation (13%). In males 58% were triggered to use tobacco after meals

or with tea/coffee followed by free time or relaxation (14%). In females 79% have been

triggered to use tobacco after meals or with tea/coffee followed by during work time (11%)

(Table13). The difference between triggering factors and gender was statistically highly

significant ($\chi^2 = 106.1$; $P > 0.001$) . 13. Table for triggers to tobacco use Triggers Male Female

Total

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N % N % N % After Meals / With Coffee Or Tea 14 99 58 207 79 1706 60 During Morning Toilet

119 5 5 2 124 4 Work related 166 6 28 11 194 7 Relaxing / Free Time 359 14 5 2
 364 13 Stress
 56 2 56 2 Driving / Night Shift 214 8 6 2 220 8 Drinking Alcohol 34 1 34 1 Others 11
 0 5 2 16 1
 Not Specific 115 4 6 2 121 4 Total 2573 100 262 100 2835 100

In the study population 27% of them had attempted to quit the habit. It was 28% among males and 16% among females (Table 14)

14.table for subjects who attempt to quit the tobacco use Gender Attempt to Quit Total

Yes No

N % N % N % Male 726 95 1847 89 2573 91 Female 42 5 220 11 262 9 Total 768
 100 2067 100
 2835 100

In the study population 1342 (47%) of them were alcohol users. All the male patients had the habit of alcohol consumption (100%). Among the patients with alcohol habit 65.6% were

presented with oral lesions. Alcohol use along with different form of tobacco use the lesion

present in 63.4% of smoking tobacco use 63.6% smokeless form of tobacco use and 73.8% in

both form of tobacco users (Table 15). The difference between the prevalence of alcohol use

and different form of tobacco use was statistically highly significant ($\chi^2 = 10.42$; $P > 0.005$).

15.Table for alcohol use among different form of tobacco users Alcohol use

Presence of Lesion Total

Lesion Present No Lesion N %

N % N %

Smoking Tobacco 492 63.4% 284 36.6% 776 100.0%

Smokeless Tobacco 185 63.6% 106 36.4% 291 100.0%

Both 203 73.8% 72 26.2% 275 100.0% Total 880 65.6% 462 34.4% 1342 100.0%

In the present study, among the total number of subjects, 1492 (53%) subjects had lesions, out

of which single lesions was presented in 1262 (45%) subjects, two or more lesions were

presented in 230 (8%) subjects. In males 1371 (53%) subjects presented with lesions, out of

which single lesions was presented in 1151 (44%) subjects, two or more lesions were

presented in 220 (9%) subjects. In females 262 (46%) present with lesions, out of which single

lesions was presented in 111(42%) subjects, two or more lesions were presented in 10 (4%)

subjects (Table 16). In the present study individual lesion is a combination of different type of

single lesion with same type of lesions in the multiple lesions. Out of study population, 2835

Tobacco pouch keratosis was seen as a individual lesion in 550 subjects (19%) followed by Smokers palate in 417 subjects (15%) and Leukoplakia in 355 subjects(13.5%) In males most prevalent individual lesion was Tobacco pouch keratosis presented in 468 subjects (18%) followed by Smokers palate in 417 subjects (16%) and Leukoplakia 355 subjects(13%). In

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females most common individual lesion was Tobacco pouch keratosis present in 82 subjects (31%) followed by leukoplakia presented in 33 subjects (13%) (Table 17)

16. Table for presence of single and multiple lesions

Type of Lesion Male Female Total

N % N % N %

Smokers Palate 275 11 275 10

Leukoplakia 171 7 22 8.4 193 7

Tobacco Pouch Keratosis 448 17 77 29 525 18.5

Oral Submucous Fibrosis 67 2.5 11 4.2 78 2.7

Carcinoma 4 0.1 1 0.4 5 0.2

Smokers Melanosis 148 6 148 5

Candidal Infection 27 1 27 1

Leukoedema 11 0.4 11 0.4

leukoplakia and smokers palate 102 4 102 3.6

leukoplakia and lichenoid reaction 5 2 5 0.2

leukoplakia and smokers melanosis 32 1.2 32 1.1

leukoplakia and tobacco pouch keratosis 10 0.4 5 2 15 0.5

leukoplakia and candidal infection 14 0.5 14 0.5

Oral submucous fibrosis and carcinoma 2 0 2 0

Oral submucousfirosis and tobacco pouch 10 0.4 10 0.4

Oral submucous fibrosis and leukoplakia 5 0.2 5 0.2

Oral submucous fibrosis and smokers palate 5 0.2 5 0.2

Oral submucous fibrosis and candidal infection 5 0.2 5 0.2

Smokers palate and candidal infection 14 0.5 14 0.5

Leukoplakia and smokers palate and candidal infection 16 0.6 16 0.6

Leukoplakia and smokers palate and leukoedema 5 0.2 5 0.2

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Total 1371 53 121 46 1492 53

17. Table for individual lesions Individual Lesions Sex Total

Male Female

N % N % N % Smokers Palate 417 16 0 0 417 15 Leukoplakia 355 13 33 13 387 13.5 Tobacco

Pouch Keratosis 468 18 82 31 550 19 Oral Submucous Fibrosis 89 3.4 12 .5 101 4
Carcinoma 6

0.2 1 0.3 7 0.2 Smokers Melanosis 180 7 0 0 180 6.3 Others (Candidal Infection,
Leukoedema,

Lichenoid Reaction) 92 3.4 6 2.2 98 4

In smoking form tobacco users group most common individual lesion was Smokers
palate

26% followed by Leukoplakia 20%, but Tobacco pouch keratosis and oral
submucous keratosis

were absent. In smokeless form of tobacco users group most common individual
lesion was

Tobacco pouch keratosis in 42% subjects followed by oral submucous fibrosis in
10% subjects,

but smokers palate and smokers melanosis were absent In both forms of tobacco
users group

most common individual lesion was Tobacco pouch keratosis in 49% subjects
followed by

Leukoplakia in 6% subjects (Table 19)

18. Table for single and multiple lesions in different form tobacco users

Type of Lesion Type of Tobacco Use Total Chi square p

Smoking Tobacco Smokeless Tobacco Both N %

N % N % N % Smokers Palate 270 17 5 1 275 10 1469.81 > 0.001** Leukoplakia
150 9 33 4 10 2

193 7 Tobacco Pouch Keratosis 335 40 190 46 525 19 Oral Submucous Fibrosis 68
8 10 2 78 3

Smokers Melanosis 144 9 4 1 148 5 Carcinoma 3 0.2 1 0.1 1 0.2 5 0.18 Candidal
Infection 27 2

27 1 Leukoplakia and Smokers Palate 102 6 102 4 Leukoplakia and Smokers Palate
and

Candidal Infection 16 1 16 1 Leukoplakia and Lichenoid Reaction 5 0.6 5 0.18
Leukoplakia and

Smokers Melanosis 32 2.0 32 1.13 Oral Submucous Fibrosis and Candidal Infection
5 1.2 5 0.18

Leukoedema 11 0.7 11 0.39 Oral Submucous Fibrosis and Leukoplakia 5 0.6 5 0.18
Leukoplakia

and Smokers Palate and Leukoedema 5 0.3 5 0.18 Leukoplakia and Tobacco Pouch
Keratosis 5

0.6 10 2.4 15 0.53 Smokers Palate and Candidal Infection 14 0.9 14 0.49 Oral
Submucous Fibrosis

and Tobacco Pouch Keratosis 10 1.2 10 0.35 Leukoplakia and Candidal Infection 10
0.6 4 1.0 14

0.49 Oral Submucous Fibrosis and Carcinoma 1 0.1 1 0.2 2 0.07 Oralsubmucous
Fibrosis and

Smokers Palate 5 1.2 5 0.18 Total 784 49 463 55 245 60 1492 53

19. Table for individual lesion present among different form tobacco users

Individual Lesion Smoking tobacco Smokeless tobacco

Both

N % N % N % Smokers Palate 407 26 0 0 10 2 Leukoplakia 315 19.8 48 6 24 5.5
Tobacco Pouch

Keratosis 468 0 350 42 200 49 Oral Submucous Fibrosis 89 0 84 10 21 5 Carcinoma
3 0.2 2 .2 2
0.5 Smokers Melanosis 176 11 0 0 4 1 Others (Candidal Infection, Leukoedema,
Lichenoid
Reaction) 83 5 5 .6 9 2
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Discussion The overall prevalence of tobacco use in this study was 4.08% with 2835
users
which was very lower than that reported by Chaudhry et al³³ 29.6% in Karnataka and
34.6% in
Uttar Pradesh, 24.78% reported in Madhya Pradesh by Mishra et al²³, and as a
national
average of 30.2%. Tobacco use in India has been higher among males than females
in India.

In this study population, 90.8% were males and 9.2% were females. Male
predominance seen
in this study was in accordance with Kasat et al¹⁷ (91.7%), which is higher than
reported by
Mishra et al²³ (75.80%), Sinha et al³⁴ (71%), Gupta et al¹⁵ (52.6%), Chaudhry et
al³³ in rural
UP (51%), National Family Health survey – 3 report (61.1%). In this study,
prevalence of tobacco
use was 9.8% among women which is comparable to Kasat et al¹⁷ (8.82%), rural
area of UP
(9.2%), but is lower than overall prevalence in Maharashtra (15%-20%) and also
reported by
Gupta et al¹⁵ (17.7%). The prevalence of oral lesions in tobacco users in this study
was 52.6%
which was in accordance to 49.52% reported by Kasat et al¹⁷, 44.1% reported by
Sujatha et
al²⁴, 43.12% reported by Mishra et al²³, which was more than (26.8%) reported by
Patil et
al¹⁹, 7.98% reported by Manjiri et al²⁷, 4.1% reported by Saraswathi et al¹³, but less
than
73.8% reported by Chandra et al. The difference can be explained by the lower rate
of use of
tobacco among the study participants which was 6.9% in Saraswathi et al¹³, 7.98% in
Manjiri et
al²⁷, 23.5% Chandra et al¹⁸ and 50% Patil et al¹⁹. This difference can be attributed
to the
variations in the study population surveyed, i.e., a hospital-based study with mixed
population
and differences in the pattern and duration of habits.
In this study, overall education attainment of patients was low (primary and
secondary school

education – 60.7%) which supports the findings that tobacco use is higher among individuals with lower level of education as evidenced by Rani et al¹⁰, Neufeld et al¹², Mishra et al²³. In this study, most of the males (48.1%) and females (97.7%) with tobacco habits had very less income (>5000 rupees) which is in contrast with the study of Saraswathi et al¹³, but consistent with the study of Kinra et al³⁴, and the overall national situation, thus supporting the finding that tobacco use is higher among individuals with lower standards of living. In this study, the form of tobacco use, smoking tobacco (55.9%) was more common than the smokeless form (20.3%) in males, which is consistent with the finding of Gupta et al²², but in contrast with Kasat et al¹⁷, Sinha et al³⁵, Manjiri et al²⁷, Aslesh et al²¹. In this study, all females using smokeless form of tobacco (100%) which is consistent with the finding of Kasat et al¹⁷, Gupta et al¹⁵. In this study, among males light tobacco users (61.2%) were higher in number than moderate tobacco users (34%). Which is comparable to Kasat et al, which is in contrast to the study of Goswani et al¹¹. In this study, females were mainly light tobacco users 41.6% which is lower than reported by Kasat et al¹⁷ (90.2%), Goswami et al¹¹ (71.8%). In the present study, friends was the most common reasons for tobacco use initiation in males, which is consistent with the study done by Kasat et al¹⁷ (76%), which is in contrast to the study of Mishra et al²³ (most common reason was not specific reason - 23.96%). In females most common reasons for tobacco use initiation was toothache (41%) followed by friends (37%), which in contrast with Kasat et al¹⁷ (cleaning of teeth – 34.37%), Mishra et al²³ (not specific reason – 33.33%) In this study, most common trigger for tobacco use in males was after meals / with tea or coffee (58%), which is comparable with Kasat et al¹⁷ (after meals – 53.13%), which is in contrast with Mishra et al²³ (feeling of being able to work efficiently – 31.13%). In females most common trigger for tobacco use was after meals / with tea or coffee (79%), which is in contrast with Kasat et al¹⁷ (during morning toilet – 45.31%), Mishra et al²³ (for morning

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toilet – 28.77%). In this study, all the lesions were more prevalent in men than women, which is consistent with study by Saraswathi et al¹³, Kasat et al¹⁷. In this study, most common oral lesion in both the gender was tobacco pouch keratosis , which is comparable with Kasat et al¹⁷, in contrast with Saraswathi et al¹³ (melanosis was the most common lesion in both gender), and Manjiri et al (in males most common lesion was smokers palate where as in females was OSMF). In this study, smokers palate was the second most common lesion in males, which is comparable with Saraswathi et al¹³, in contrast with Kasat et al¹⁷ (oral submucous fibrosis) and Manjiri et al²⁷ (tobacco pouch keratosis). In this study, second most common lesion in females was leukoplakia, which comparable with Saraswathi et al¹³, in contrast with Kasat et al¹⁷ (smokers palate), Manjiri et al²³ (tobacco pouch keratosis).

Whitish mucosa with red centres is a characteristic finding of the hard palate in smokers. The aetiology is probably related more to the high temperature rather than the chemical composition of the smoke, although there is a synergistic effect of the two (Axell et al, 1990).

The prevalence of smoker’s palate (15%) was higher to the previous studies done by Chandra et al¹⁸ (5.2%), lower than reported by Manjiri et al²³ (34.4%).

In present study, the prevalence oral submucous fibrosis was 4%. These results lower than report by Kasat et al¹⁷ (15.30%), Patil et al¹⁹ (7.1%), and Mishra et al²³ (5.43%). These results

higher than that previous studies Chandra et al¹⁸ (2.2%), Gupta et al¹⁵ (3.2%) 1998;

Saraswathi et al¹³ (0.05%). The study reinforces the association of OSMF with HANS tobacco and areca nut chewing.

Leukoplakia, a pre-malignant lesion associated with both forms of tobacco, had an overall

prevalence of 13.5. These higher than those of other authors Patil et al¹⁹ (8.2%), Chandra et al¹⁸ (3.5%), Mishra et al²³ (3.31%)

Tobaccopouch keratosis is confined to areas in direct contact with spit tobacco, chronically stretched tissues in the area of tobacco placement leads flaccidity. It is typically appear as a

thin, grey or greyish white, almost 'translucent' plaque with border that blends gradually into the surrounding mucosa (Axell et al, 1990). In our study, the overall prevalence was 19%.

Which were less than that reported by Kasat et al¹⁷ (78.14%), Mishra et al²³ (31.83%) and

Manjiri et al²⁷ (30.1%). These results higher than reported by Chandra et al¹⁸ (1.4%)

. The prevalence of malignancy in the present study was 0.2%. These results are similar to

study done by Chandra et al¹⁸ (0.1%)

Smoking induces increased melanin pigmentation in the oral mucosa. It may be due to the

effects of nicotine on melanocytes. Nicotine appears to directly stimulate melanocytes to

produce more melanosomes. In the present study, melanosis was more prevalent among

smokers (6.3%). This higher than reported by Chandra et al¹⁸ 5.4%.

Conclusions Tobacco use in different forms is one of the prime factors responsible for

potentially malignant disorders and cancerous lesions. Lack of awareness regarding harmful

effects is a major reason. There was

24

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0: <http://www.ijdr.in/article.asp?>

issn=0970-9290;year=2016;volume=27;issue=4;spage=405;epage=409;aulast=Joshi 73%

strong association of these habits with respect to frequency and duration and occurrence of the oral lesions.

The most common age of starting the tobacco habit was between 15-26 years, awareness

should be focussed in this age group. The most common influential factor was friends and the

most common trigger factor was after meals and with tea or coffee and the tobacco cessation

counselling should more focussed in those factors.

25

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various forms of tobacco usage and its associated oral mucosal lesions

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According to the World Health Organization (WHO) estimates , globally, there were 100 million premature death due to tobacco in the 20th century, and if the current trends of tobacco use continue, this number is expected to rise to 1 billion in the 21st century (6).

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Most cigars are made up of a single type of air-cured or dried tobacco. Cigar tobacco leaves are first aged for about a year and then fermented in a multi-step process that can take from 3 to 5 months.

1: <http://tobacco.virgo.com.bd/shop/cigars/cigars/> 100%

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survey of sociodemographic characteristics of tobacco use among 99598 individuals in Bombay, India using handheld computers.

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regular use of alcohol and tobacco in India and its association with age, gender, and poverty. 471143

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85;aulast=Sridharan 93%

TOBACCO ASSOCIATED ORAL MUCOSAL LESIONS

Long term contact of tobacco with the oral mucosa induces variety of changes which could be due to the carcinogen itself or as a protective mechanism of the oral cavity. These changes could be categorized as tobacco induced oral mucosal lesions which are less likely to cause cancer, lesions that are potentially malignant and tobacco induced malignancies.

TOBACCO INDUCED NON-NEOPLASTIC ORAL MUCOSAL LESIONS

The tobacco induced mucosal lesions which are less likely to cause cancer are leukoedema, smoker's palate, lichenoid reaction, smoker's melanosis, tobacco pouch keratosis, palatal

erythema

10: <http://www.indianjcancer.com/article.asp?>

issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan 93%

Tobacco Induced Oral Mucosal Lesions Top

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» Tobacco Induced Non-Neoplastic Oral Mucosal Lesions Top

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31

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Leukedema is a chronic white mucosal condition in which the oral mucosa has a grey opaque appearance. When the mucosa is stretched, the lesions disappear and reappear on releasing the mucosa. It develops due to piling of spongy cells.

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12: <http://www.indianjcancer.com/article.asp?>

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palate and is a common reaction of palatal mucosa to smoking.

Clinically the lesion appear as diffuse white patch with numerous excrescences having central red dots corresponding to minor salivary gland ducts.

12: <http://www.indianjcancer.com/article.asp?>

issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan 100%

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13: <http://www.indianjcancer.com/article.asp?>

issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan 78%

These lesions are more prevalent in men due to increased usage of tobacco smoke among them.

13: <http://www.indiancancer.com/article.asp?>

issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan 78%

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32

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LICHENOID LESIONS Lichenoid lesions grossly resembles oral lichenplanus but have certain specific differences. The lesion is characterized by the presence of fine, white, wavy parallel lines that do not overlap or criss-cross, is not elevated. The lesion generally occurs at the site of quid placement..

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14: <http://www.indiancancer.com/article.asp?>

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Oral pigmentation secondary to smoking may occur at any site with increased tendency to affect facial gingiva. The frequency of the lesions increases with heavy usage of

14: <http://www.indiancancer.com/article.asp?>

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15: <http://www.indiancancer.com/article.asp?>

issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan 97%

It has been suggested that melanin production in the oral mucosa of smokers serves as a protective response against some of the harmful substances in tobacco smoke.

TOBACCO INDUCED POTENTIALLY MALIGNANT DISORDERS

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» Tobacco Induced Pre-Malignancies Top

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LEUKOPLAKIA

Leukoplakia is defined as a

predominantly white lesion or plaque affecting the oral mucosa that cannot be characterized clinically or histopathologically as any other

disease and is not associated with any other physical or chemical agents except tobacco. Leukoplakia is the term used to recognize

white plaques of questionable risk having excluded other known diseases or disorders that carry no increased risk

of cancer. A biopsy is mandatory. A definitive diagnosis is made when any etiological cause other than tobacco/areca nut use has been excluded and histopathology has not confirmed any other specific disorder.

Leukoplakia is considered as a potentially malignant disorder with a malignancy conversion rate ranging from 0.1% to 17.5%. In India, the prevalence of leukoplakia varies from 0.2% to 5.2% and malignant transformation ranges between 0.13% and 10% according to various studies.

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Leukoplakia is defined as a predominantly white lesion or plaque affecting the oral mucosa that cannot be characterized clinically or histopathologically as any other disease and is not associated with any other physical or chemical agents except tobacco. [20]

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34

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ERYTHROPLAKIA

Erythroplakia is an uncommon but severe form of precancerous lesion defined by WHO as "any lesion of the oral mucosa that presents as bright red velvety plaques which cannot be characterized clinically or histopathologically as any other recognizable condition".

17: <http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aualast=Sridharan> 95%

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18: <http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aualast=Sridharan> 89%

Oral submucous fibrosis as a potentially malignant disease was first described in 1950's. It is a chronic disorder characterized by fibrosis of the lining mucosa of the upper digestive tract involving the oral cavity, oro- and hypopharynx and the upper third of oesophagus. The fibrosis involves the lamina propria, submucosa and may extend into the underlying musculature, resulting in limited mouth opening.

Areca nut has been proved to be the single most important etiological factor responsible for OSMF. The pre-cancerous nature was first described by Paymaster in 1956 that was later

18: <http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aualast=Sridharan> 89%

Oral submucous fibrosis

OSMF as a potentially malignant disease was first described in 1950's with increased tendency to affect people of Asian descent. [24] It is a chronic disorder characterized by fibrosis of the lining mucosa of the upper digestive tract involving the oral cavity, oroand hypopharynx and the upper third of oesophagus. [25] The fibrosis involves the lamina propria and the submucosa and may extend into the underlying musculature resulting in the deposition of dense fibrous bands, resulting in limited mouth opening. [26]

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confirmed by various studies. A malignant transformation rate was shown to be in the range of 7 to 13%. Previous data indicated that the prevalence of OSMF was in the range of 0.03% to 3.2%. The incidence is progressively increasing owing to the

excessive usage of areca nut among various groups of population.

Areca nut has been proved to be the single most important etiological factor responsible for OSMF. [26] The pre-cancerous nature was first described by Paymaster in 1956 that was later confirmed by various studies. [24] A malignant transformation rate was shown to be in the range of 7 to 13% and a transformation rate of 7.6% was reported in cohort study. [24], [27] Previous data indicated that the prevalence of OSMF was in the range of 0.03% to 3.2%. [28],[29] The incidence is progressively increasing owing to the excessive usage of areca nut among various groups of population.

19: <http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan> 100%

Lichen planus is a mucocutaneous disorder affecting the skin and mucous membrane.

19: <http://www.indianjcancer.com/article.asp?issn=0019-509X;year=2014;volume=51;issue=1;spage=80;epage=85;aulast=Sridharan> 100%

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tobacco use, its influences, triggers, and associated oral lesions among the patients

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prevalence of most commonly reported tobacco- associated lesions in central Gujarat.

8: <http://www.ijdr.in/article.asp?issn=0970-9290;year=2016;volume=27;issue=4;spage=405;epage=409;aulast=Joshi> 100%

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9: <http://www.ijdr.in/article.asp?>

issn=0970-9290;year=2016;volume=27;issue=4;spage=405;epage=409;aulast=Joshi 94%

maximum cases having habit of smokeless tobacco (37.9%) and smoking tobacco (36.5%). The overall prevalence was found to be 7.98%.

9: <http://www.ijdr.in/article.asp?>

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20: <http://www.ijdr.in/article.asp?>

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The Hookah consists of a head, body water bowl and hose.

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Pipe Pipes are often reusable and consist of a chamber or bowl, stem and mouthpiece. Tobacco is placed into the bowl and lit.

The smoke is than drawn through the stem and mouthpiece and inhaled.

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