International Journal of Psychosocial Rehabilitation, Vol. 23, Issue 05, 2019
ISSN: 1475-7192

PREVALENCE OF ORAL MUCOSAL LESIONS AMONG TOBACCO USERS VISITING A DENTAL HOSPITAL - A RETROSPECTIVE STUDY

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Abstract

Oral Mucosal lesions(OMLs) are any alteration in oral mucosal surfaces which can cause discomfort and pain. The aim of this study is to analyse the common oral mucosal lesions among tobacco users visiting dental hospital. A retrospective study was conducted by evaluating and analysing 1113 patient case records visiting a dental hospital from June(2019) to March(2020) who were tobacco users. Data such as age, gender, type of tobacco, site and type of lesions were documented. Descriptive analysis and Chi Square test were done. The result showed that prevalence of oral lesions were higher among patients of age group 20-40 years(50.6%) and among males patients(96.6%). Leukoplakia(25.6%) and tobacco pouch keratosis(25.6%) were commonly reported lesions. Among the patients who had presented with oral lesions, 87.3% of the tobacco users had only single oral lesions and buccal mucosa(63.7%) being the most common site of occurence. The present study provides epidemiological information on OMLs among patients seeking dental care, which could be a valuable source for future community tobacco control programs .

Keywords: *Oral mucosal lesions, Prevalence, Potential malignant disorders, Smoking, Tobacco, Patients, Smokeless*

Introduction

Smokeless tobacco use is more common in India and SouthEast Asia[1]. India is the second largest producer and consumer of tobacco next to China[2]. Tobacco contains numerous carcinogens mostly polycyclic aromatic hydrocarbons, aromatic amines and nitrosamines which cause cellular damages to the host body[3]. Tobacco usage is one of the main risk factors for causing cardiovascular diseases and lung diseases[4]

In India, the use of cigarette smoking is comparatively lesser than the usage of smokeless tobacco as it is more socially acceptable and can be practiced without detection[5]. The WHO also predicts that India will have deaths attributed to tobacco usage in future years and highest rates of oral cancer due to the prevalence of tobacco chewing[6]

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Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

Use of tobacco in the form of either smokeless or smoking has been highly associated with oral mucosal lesions, which in turn may eventually become malignant[7]. Oral mucosal lesions are due to any abnormal alteration in colour, surfaces, aspect, swelling and integrity of oral mucosa. Though many are benign lesions, some may cause significant pathology and malignancy. These lesions can affect daily life functions through impairment in mastication, speech and swallowing with symptoms of pain, burning and irritants[8].

In comparison to western population in oral cancer represents about 3% of malignancies, 30% of all cancers occurred in world accounts to India. This is due to regional variation in the prevalence and pattern of habits[9]. The treatment needs also vary with every geographic region within a country and even between different communities.

Previously our team has conducted numerous cross sectional studies[10–12], clinical trials[13–18], in-vitro studies[19–23], over the past 5 years. Now we are focussing on epidemiological surveys.

Since the epidemiological studies provide information which are essential to understand prevalence and severity of oral diseases in specific populations, the present study was carried out to study and analyse prevalence of oral mucosal lesions among tobacco users visiting a dental hospital in Chennai.

MATERIALS AND METHODS:

Sampling:
This study was conducted in a university setting. The study samples were chosen from the patients visiting a hospital in Chennai from June(2019) to March(2020).

Data collection:
The retrospective study was carried out among patients of all age groups. Data collection was done through reviewing the records of 86000 patients between June(2019) - March(2020). A total of 1113 patients reported with tobacco habits for at least a year with complete data. Data such as the patient's age, gender, type of tobacco, site and type of lesions were noted. The data collected were cross verified with intraoral photographs.

Inclusion criteria:
Only the patients who were using tobacco for at least a year of all age groups were included.

Exclusion criteria:
Patients with severe systemic diseases and under special care were excluded. Incomplete/ censored data were excluded too.

Approval:
Ethical clearance was obtained from the Institutional Scientific Review Board of the Saveetha University(SDC/SIHEC/2020/DIASDATA/0619-0320).

Data analysis:
The data collected was entered in the excel sheet and transferred to SPSS software. Data was analysed using SPSS software though frequency distribution and Chi-square tests.

RESULTS:

A total of 1113 reported to the hospital with tobacco habits. The mean age of the study population was 38.1years. Among them, 1084(97.3%) of the patients were males and 29(2.5%) were females.

In the present study, usage of smoking was prevalent among all age groups. Smokeless tobacco use was the most common habit among females(58.7%) and smoking was the most common habit among males(76.8%)(Table 1).

Majority of the study group belong to the age of 20-40(58.4%) with tobacco usage which is however not statistically significant(Figure 1). In this study, 75.9% of the study population were smokers, 16.0% were smokeless tobacco users, 8% used both smoking and smokeless forms of tobacco.

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

In the present study, 20.5% of the total patients presented with single or multiple oral mucosal lesions. The prevalence of oromucosal lesions were more among males(96.6%) than females(3.4%). About 27.5% of females and 22.3% of the males reported with one or more oromucosal lesions. (Figure 2).

In the present study, oromucosal lesions were more common among 20-40 years old (50.6%)(Figure 3). Out of 20.5% of the patients who had reported with oral lesions, it was found that about 87.3% of the patients had only one mucosal lesion, 9.3% of the patients had two lesions and only 3.4% of the patients reported with more than two lesions.

Leukoplakia(25.6%), Tobacco pouch keratosis (25.6%) and OSMF (13.9%) were the most common lesions diagnosed in this study(Figure 4). Tobacco pouch keratosis (15.8%) was the most common in the age group of 20-40 years old while leukoplakia was more prevalent among patients of all other age groups(Figure 5). Among them, higher prevalence was seen at the site of buccal mucosa (63.7%) followed by labial mucosa (10.4%) and hard palate (10.1%)(Figure 6).

Gender	**Form of tobacco**			**Total**
	Smoking (N %)	**Smokeless (N %)**	**Both (N %)**	
Male	833 (76.8%)	162 (15.0)	89 (8.2%)	1084
Female	12 (41.3%)	17 (58.7%)	0 (0%)	29
Total	845 (75.9%)	179 (16.1%)	89 (8.0%)	1113

Table 1: Gender wise distribution of study population based on the form of tobacco usage. Prevalence of smoking was found to be higher among males(76.8%) and smokeless tobacco usage found to be higher among females(58.7%).

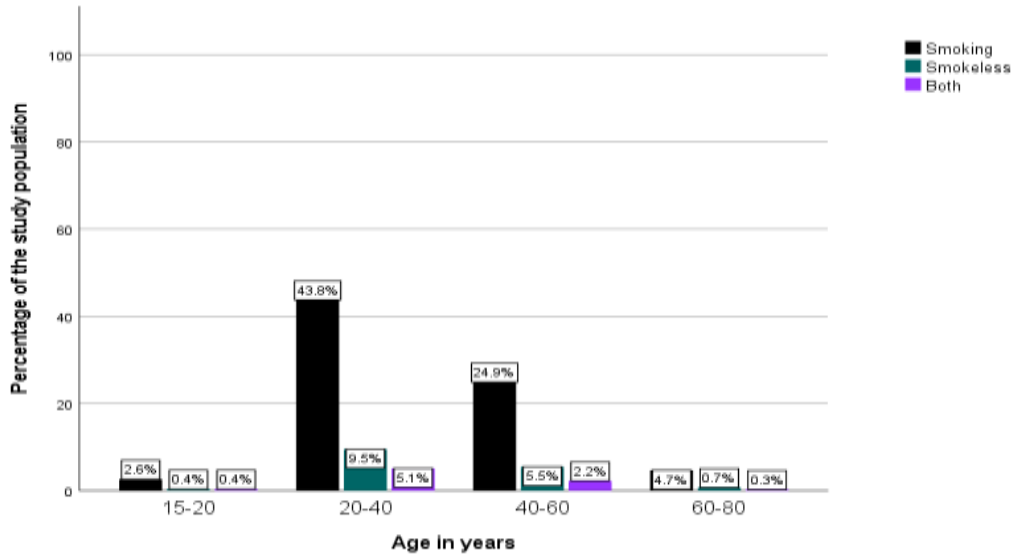

Figure 1: Bar chart showing the distribution of study population with tobacco habits based on age group. X-axis shows the age group distribution and Y-axis shows the distribution of the study population based on the form of tobacco usage in percentage. Prevalence of smoking was found to be higher among patients of age group 20-40(43.8%), however it was not statistically significant.(Chi square test;$\chi 2=3.946$, df=6, pValue=0.684(>0.05))

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

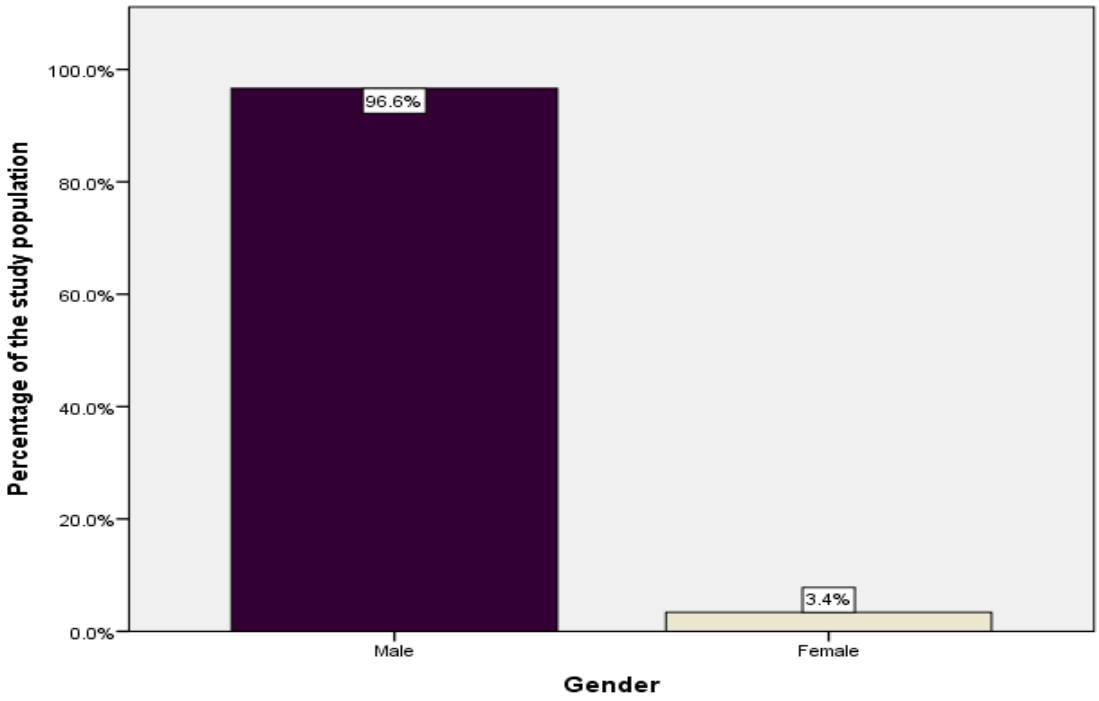

Figure 2: Bar chart showing the distribution of study population with the presence of oral lesions according to gender. X-axis shows the gender wise distribution of the study population and Y-axis shows the distribution of the study population with the presence of oral lesions in percentage. Prevalence of oral lesions was found to be higher among males(96.6%-violet) compared to females(3.4%-white).

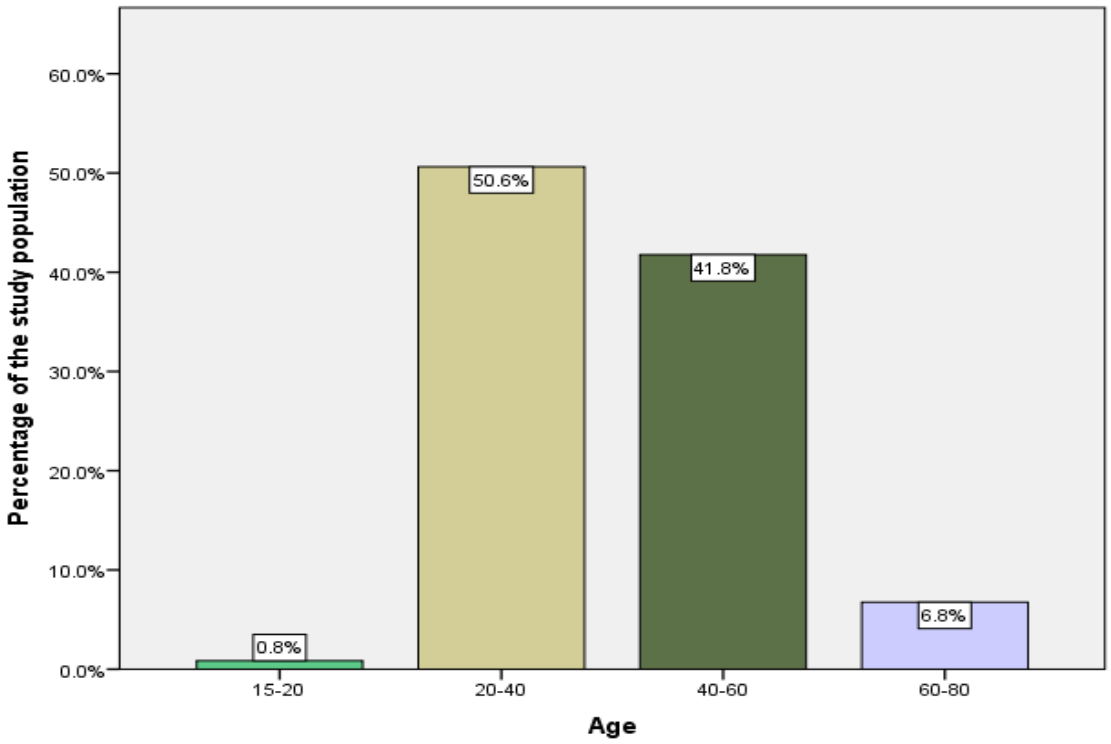

Figure 3: Bar chart showing the distribution of study population with the presence of oral lesions according to age group. X-axis shows the age wise distribution of the study population and Y-axis shows the distribution of the study population with the presence of oral lesions in percentage. Prevalence of oral lesions was found to be higher among the patients of age group 20-40(50.6%-beige).

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

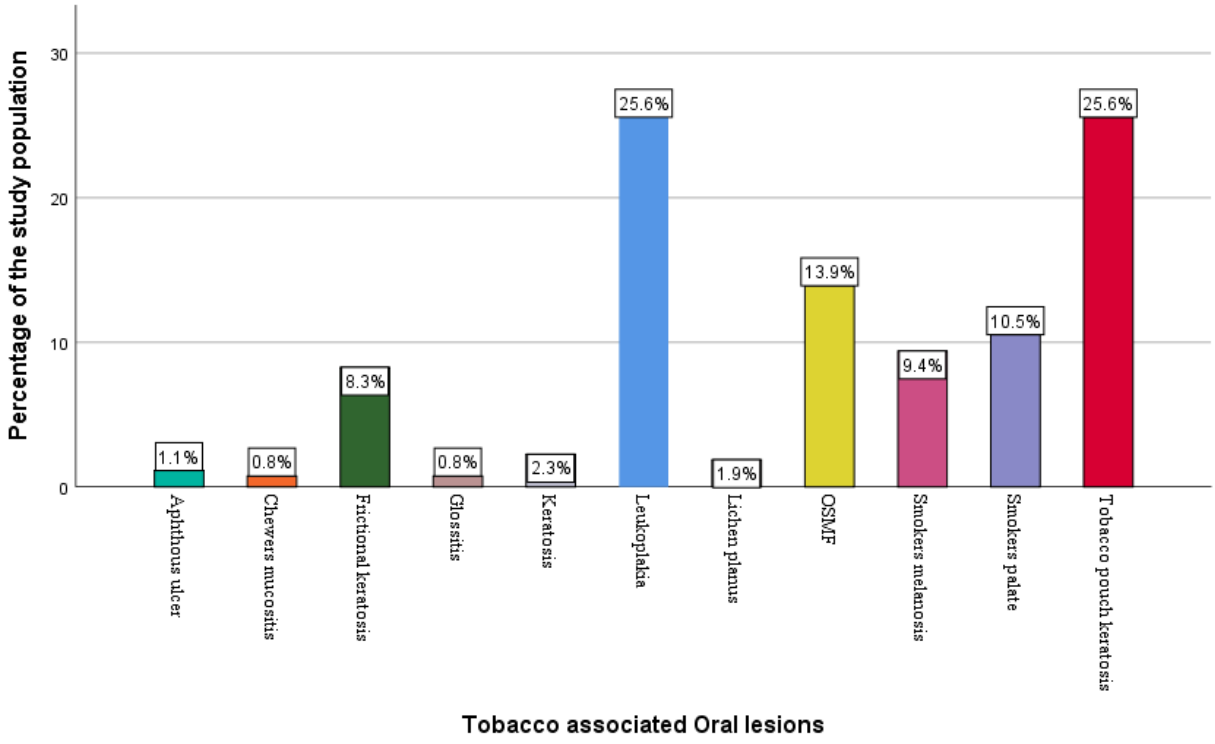

Figure 4 : Bar chart showing the distribution of study population with various oral lesions. X-axis shows the distribution of the oral mucosal lesions and Y-axis shows the distribution of the study population presented with oral lesions in percentage. Leukoplakia(25.6%-blue) and tobacco pouch keratosis(25.6%-red) were found to be the most common oral lesions among tobacco users in this study.

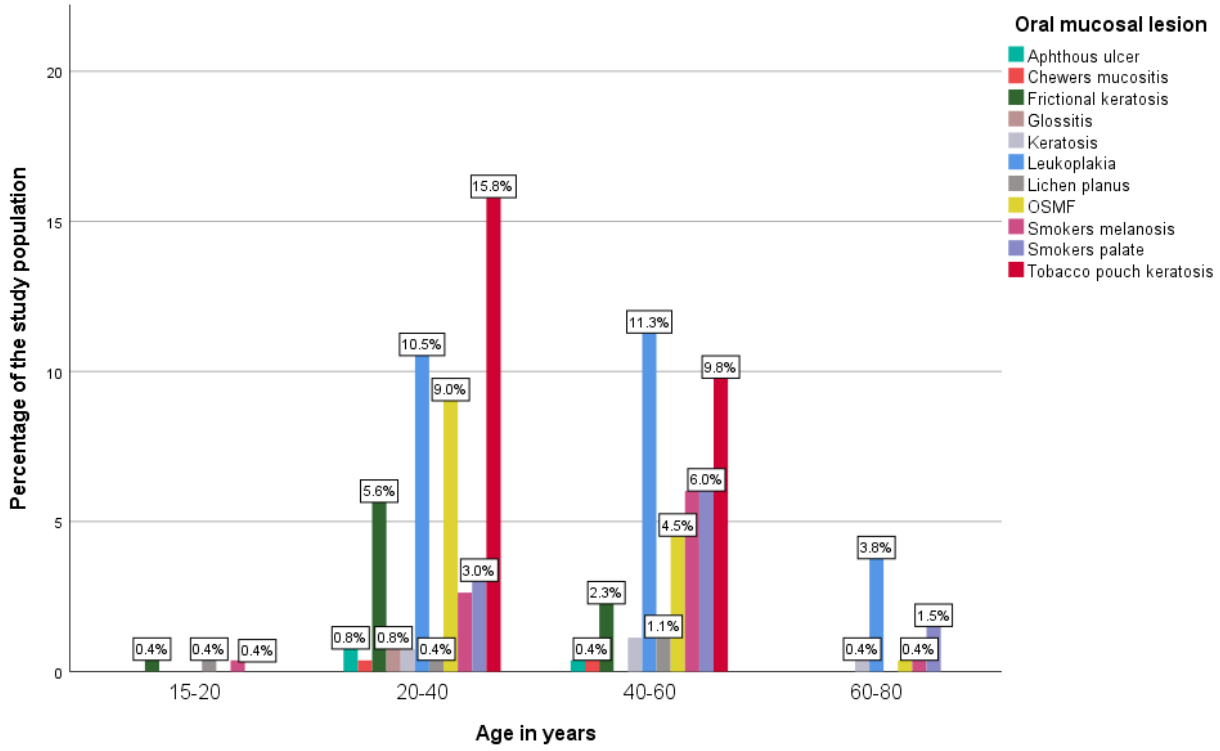

Figure 5: Bar chart showing the distribution of study population with various oral mucosal lesions according to age group. X-axis shows age wise distribution of the study population and Y-axis shows the distribution of the study population presented with various oral lesions in percentage. Tobacco pouch keratosis was the most

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

prevalent oral lesion among the patients of the age group 20-40 years(15.8%-red) and leukoplakia was the most common lesion prevalent among the patients of the age group 40-60 years(11.3%-blue). This finding was statistically significant.(Chi square test;$\chi 2$=88.514, df=60, pValue=0.010(<0.05))

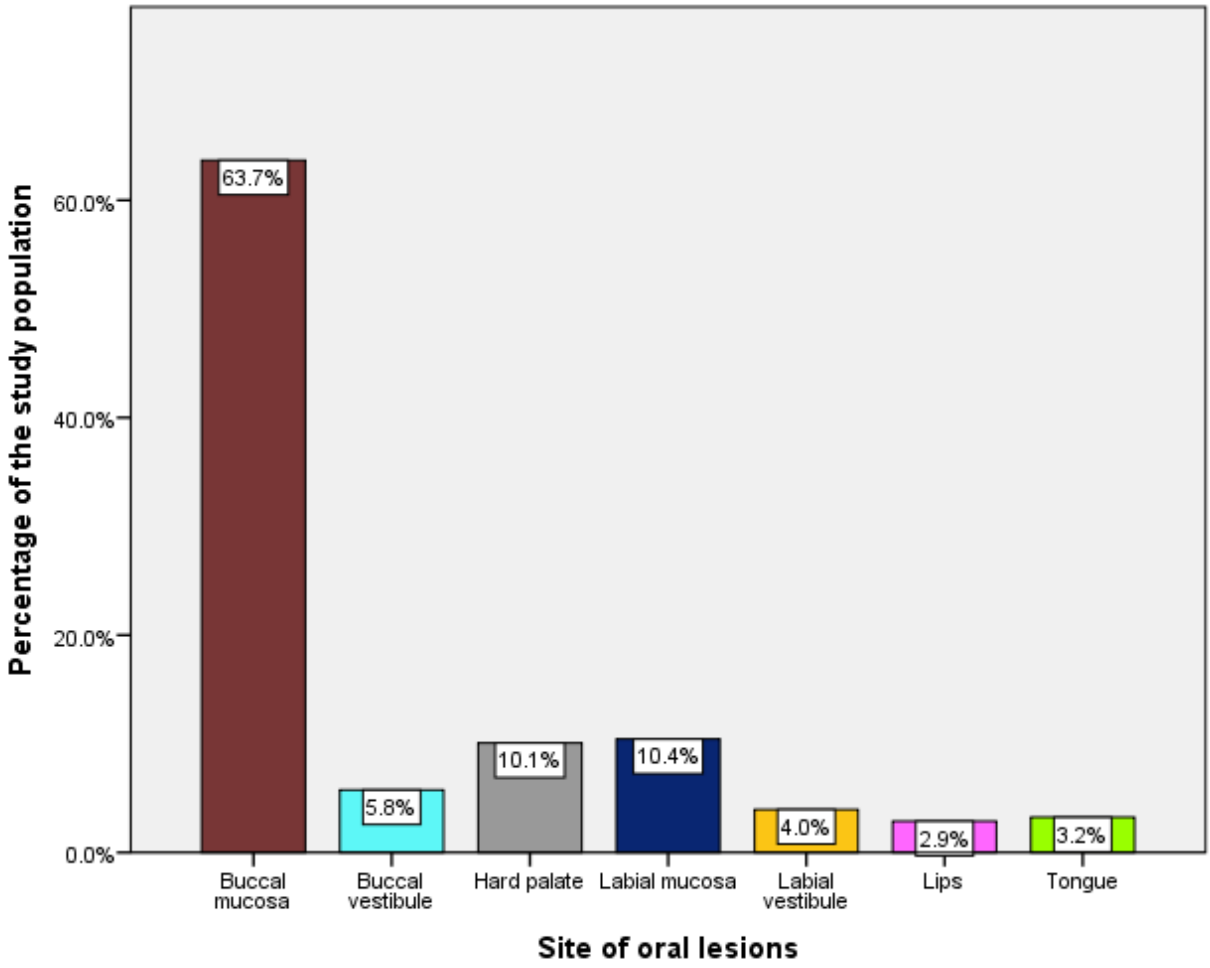

Figure 6: Bar chart depicts the distribution of oral lesions based on site. X-axis shows the site of oral mucosal lesions and Y-axis shows the distribution of the study population presented with oral lesions in percentage. Buccal mucosa(63.7%-brown) was the most common site of oral lesions among tobacco users.

DISCUSSION:

Oromucosal lesions and diseases are caused by infections, systemic diseases, drugs, adverse factors like tobacco, betel nut or alcohol consumption[24]. Tobacco usage is also positively associated which have the potential for malignant transformation[25].

The overall prevalence of oromucosal lesions among tobacco users in this study was 20.5%. The prevalence ratio is much higher than the studies conducted by Saraswathi et al([25], Chung et al[26] and Mani et al[27]. However few studies have reported higher prevalence rates by Bhowate et al[28] and Patil et al[29]. The difference in this finding may be due to the different methodologies used by different researchers. Besides, due to variations in cultural and social impacts, it is difficult to compare these studies.

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

In India, adult males are expected to smoke, while smoking in females is considered a taboo. This is greatly mirrored in the results, where 97.3% of the participants were male. This is in accordance with many studies[30–33]. In the present study, only 1.2% of the smokers were females, 98.7% were males. About 48.3% of females have the habit of chewing tobacco. The results are similar to the findings reported by Vellapally et al[31] and Rani et al[32]. Though smoking among young people and females is considered taboo in India, there is no such restriction against the usage of smokeless tobacco as it is easy to practice without any detection,

In the current study, tobacco usage was highly prevalent among young adults of age group 20-40 years compared to others. This is in accordance with studies done by Sunil et al[3], Vellapally et al[31]), Abhishek et al[34]. The presence of lesions was more prevalent among the age group of 20-40 years showing strong association with tobacco usage. About 58.6% of the smokeless tobacco users belong to this 20-40 years of age group. This finding is similar to the studies done by Singh et al[35] and Mohan et al[36] who reported that smokeless tobacco usage was higher in younger adults.

In this study, 27.5% of the females and 22.3% of the males in the sample presented with lesions. However, oromucosal lesions were more prevalent among males (96.6%) compared to females(3.3%). Previous studies by Lin et al[33], Pentenero et al[30] and Patil et al[37] reported similar findings. However few studies reported female predominances[38,39] This is due to the cultural impacts in different populations.

In the present study, Leukoplakia(25.6%) and tobacco pouch keratosis(25.6%) were the most commonly reported lesions followed by oral submucous fibrosis(13.9%). Many studies reported leukoplakia as the most commonest oral mucosal lesion[40–42]. In contrast few studies reported less prevalence of leukoplakia[43].

Many studies have reported oral submucous fibrosis as the commonest lesion among smokers[7,29,44,45]. Few studies reported higher prevalence of tobacco pouch keratosis[46,47].

In the present study, the tobacco pouch keratosis(15.8%) was common among patients of 20-40 years age group, while leukoplakia was commonly presented in all other age groups. This could be due to the increased use of chewing tobacco among young adults. This is in accordance with similar studies done by Singh et al and Mohan et al[35,36].

The oral mucosal lesions were more prevalent at buccal mucosa(63.7%). This finding is supported by few other studies[29,48,49].

The present study had few limitations like histopathological analysis not included. But still the present was able to provide the prevalence of oral mucosal lesions among tobacco users visiting a dental hospital.

CONCLUSION:

Within the limits of the study, the prevalence of oromucosal lesions was higher among tobacco users. Many of the tobacco related oromucosal lesions are asymptomatic and go unnoticed till they reach their higher stages. The lack of awareness about the harmful effects of tobacco and the ignorance towards its effects was the major cause for failure towards early diagnosis and prompt treatment.The present study provides epidemiological information on oral mucosal lesions among patients seeking dental care, which could be a valuable source for future community tobacco control programs.

AUTHOR'S CONTRIBUTION: All authors contributed to the design and implementation of the research, analysis of the results and to the writing of the manuscript.

Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

ACKNOWLEDGEMENT- Nil

CONFLICT OF INTEREST:

The authors declared that they have no conflicts of interest.

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Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019

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Received: Sep 2019 | Revised: Oct 2019 | Accepted: Nov 2019