



**PREVALENCE OF ORO-MUCOSAL CHANGES IN TOBACCO USERS COMING TO
SAIMS DENTAL HOSPITAL OPD, INDORE**

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ABSTRACT

Introduction: Tobacco consumption in any form has long been associated and indicated worldwide as the major factor in the development of oral cancer and other systemic diseases. This study was carried out to correlate tobacco habits and oral mucosal changes. **Material and Methods:** This study included 1000 tobacco users, which met inclusion-exclusion criteria visiting the outpatient department of Oral medicine and radiology and were examined clinically for mucosal changes in the oral cavity. Oral mucosal changes in tobacco consumers were assessed using WHO oral health proforma, 1997. **Result:** Out of 1000 tobacco users 94.5% were found to be male while 5.5% were female. Most commonly observed type of lesion was found to be oral sub-mucous fibrosis (OSMF), which was clinically diagnosed among 33.2% tobacco users. **Conclusion:** The study confirms the fact that use of tobacco in any form can be positively correlated to the occurrence of various potentially malignant disorders.

KEYWORDS: Oral cancer, Tobacco, Oral sub-mucous fibrosis, Potentially malignant disorders.

INTRODUCTION

Tobacco consumption in any form and alcohol have long been associated and indicated worldwide as one of the major factors in the development of oral cancer and other systemic diseases.^[1,2]

Globally various studies have been carried out by researchers, which provides a wide spectrum of oral lesions. To name some, a study was conducted by Axell (1976)^[3] reporting the prevalence of oral lesions among 20,000 adult Swedish populations. Another study was carried out in the United States of America (U.S.A), which reported the common oral lesions among the USA population (Bouquot. 1986)^[4] A survey carried out in Asia provided the prevalence of oral lesions amongst Indian population (Smith et al. 1975; Mehta et al. 1972).^[5,6]

The present study was conducted to estimate the prevalence of oral mucosal changes among tobacco users reporting to the OPD of SAIMS dental college in Indore, India. The objectives of this study were to record the demographic factors of tobacco usage, type of tobacco used and associated lesions with frequency/duration of substance used.

MATERIAL AND METHODS

This study was approved by the Institutional Review Board of Sri Aurobindo Institute of Medical Sciences. The design of the study was an observational research type and the duration of the study was one year from March 2016 to April 2017. The sample size of 1000, which met inclusion-exclusion criteria, was chosen from the population of individuals who consumed tobacco in any form. Oral mucosal changes in tobacco consumers were assessed using WHO oral health proforma, 1997. Following which they were interviewed for their adverse habits and examined for the presence of any oral lesions. Along with patients demographic details, information regarding the type of habit, duration, frequency, nature of habit and site of placement was collected.

Individuals with systemic disorders were excluded.

STATISTICAL ANALYSIS

Using the descriptive and inferential statistics based on the pre-determined objectives of the study, the analysis of the gathered data was done. The Pearson's Chi-Square test was used to observe the association of clinically diagnosed mucosal changes in the oral cavity of tobacco users with age, gender and nature of habit of tobacco.

The probability value, $p > 0.05$ was considered as statistically insignificant but the probability value from p

< 0.1 to $p < 0.06$ was considered as poorly significant. The probability value from $p < 0.05$ to $p < 0.02$ was considered as statistically significant while from $p < 0.01$ to $p < 0.001$ was considered as statistically highly/strongly significant.

RESULTS

Among 1000 subjects who have used tobacco in any form 945 (94.5%) were found to be male while rest 55 (5.5%) were female (Table 1). Mean age was in range of 38.35 ± 12.34 years (Table 2) (Figure1). Most commonly observed type of lesion was found to be OSMF, which was clinically diagnosed among 332 (33.2%) tobacco users from a total of 1000 tobacco users (Table 3) (Figure 2). Tobacco with areca nut was found to be the most consumed tobacco material used by more than one-third (37.2%) of the tobacco users, followed by 35.9% that smoked cigarette alone.

Hard palate and bilateral buccal mucosa were found to be the most common site for mucosal change seen in 43% tobacco users. Bilateral buccal mucosa remained second most common site in 19.7% tobacco users. OSMF was found to be the most prevalent mucosal change among tobacco users aged between 18-38 years and 38-58 years and least prevalent at the age of 58 and above. With respect to gender, OSMF was found to be most prevalent in male tobacco users as compared to female tobacco users. 86.3% of tobacco users were found to be only

those who had been consuming tobacco with the frequency of 0 to 5 times per day. 33.4% tobacco users were those who had duration of habit within 0-5 years. One-third of tobacco users were detected with OSMF with various grading. Major part of population of tobacco users was found to have grade I OSMF noted among 21.7%.

Table 1: Distribution of tobacco users according to gender.

Sex	Frequency (N)	Percent (%)
Male	945	94.5
Female	55	5.5
Total	1000	100.0

Table 2: Distribution of tobacco users according to age.

Age (year)	Frequency (N)	Percent (%)
18-38	541	54.1
38-58	366	36.6
58-78	90	9.0
≥78	3	.3
Total	1000	100.0
Mean ± Standard Deviation	38.35 ± 12.34 years	

Table 3: Association of mucosal changes among tobacco users with gender.

Type of Lesion	Gender		Total
	Male	Female	
Smoker's Melanosis	155 16.4%	2 3.6%	157 15.7%
Smoker's Palate	1 0.1%	0 0.0%	1 0.1%
Leukoedema	173 18.3%	10 18.2%	183 18.3%
Leukoplakia	75 7.9%	10 18.2%	85 8.5%
Tobacco Pouch Keratosis	182 19.3%	3 5.5%	185 18.5%
Erythroplakia	1 0.1%	0 0.0%	1 0.1%
OSMF	316 33.4%	16 29.1%	332 33.2%
Lichen Planus	4 0.4%	14 25.5%	18 1.8%
Smoker's Melanosis & Leukoedema	36 3.8%	0 0.0%	36 3.6%
Smoker's Melanosis, Leukoedema & Leukoplakia	1 0.1%	0 0.0%	1 0.1%
Smoker's Melanosis, Leukoedema & Tobacco Pouch Keratosis	1 0.1%	0 0.0%	1 0.1%
Total	945 100.0%	55 100.0%	1000 100.0%
$\chi^2_{10} = 200.71$ and $p = 0.000$ (Significant)			

FIGURES

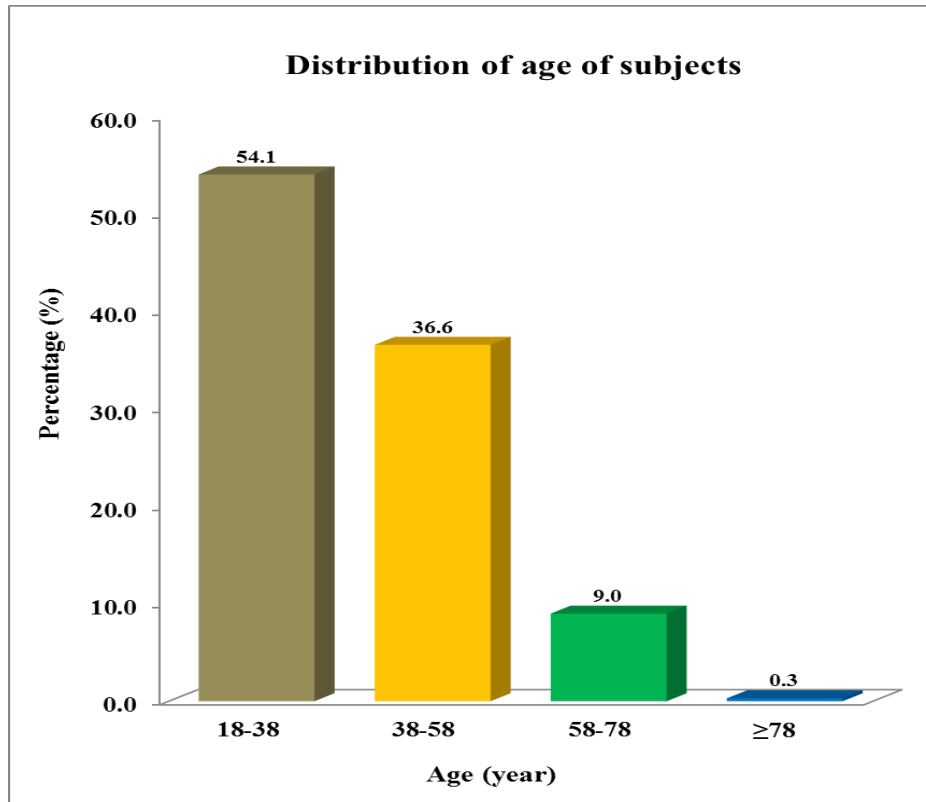


Figure 1: Bar diagram presenting the distribution of age for selected tobacco users who have been clinically examined for mucosal changes in the oral cavity.

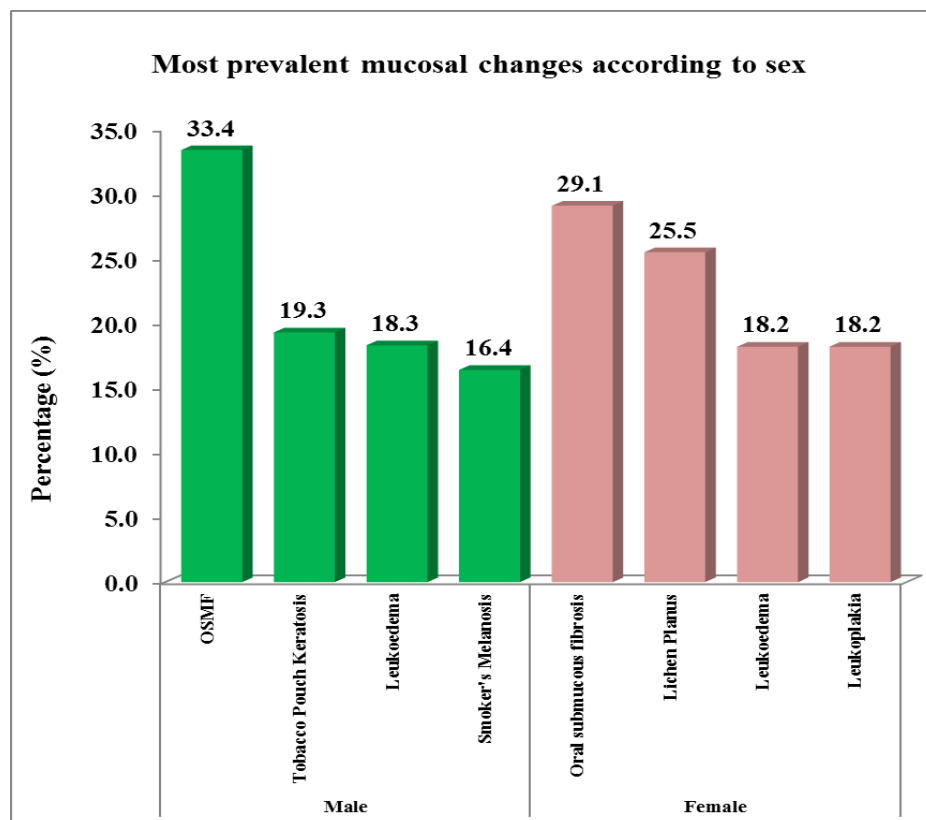


Figure 2: Bar diagram presenting the most prevalent mucosal changes that has been clinically examined in the oral cavity according to gender among selected tobacco users.

DISCUSSION

Pre-cancerous lesions and conditions associated with oral cancer are a ray of hope in prevention⁷. Early detection would not only improve the cure rate of oral cancer but would also lower the cost factor substantially reducing the morbidity associated with the treatment.

Oral cancer has well-defined risk factors, which gives a real hope for primary prevention. Despite the fact that the oral cavity is accessible for visual examination and that oral cancer and premalignant lesions have well-defined clinical diagnostic features, oral cancers are typically detected in their advanced stages.^[7]

Precancerous lesions are often subtle and mostly asymptomatic in majority of patients. Therefore, it is important for the clinician to maintain a high index of suspicion, especially if high risk factors such as tobacco use or alcohol abuse are present. Invasive oral squamous cell carcinoma are often preceded by the presence of clinically identifiable premalignant changes of the oral mucosa. These lesions often present as either white or red patches, known as leukoplakia and erythroplakia. As the cancer develops, the patient may notice the presence of a non-healing ulcer. Later stage symptoms include bleeding, loosening of teeth, difficulty-wearing dentures, dysphagia, dysarthria, odynophagia and development of a neck mass.^[8]

The current scenario of sub-dividing pre-cancer to lesions and conditions is now referred to as "Potentially malignant disorders" to reflect their wide-spread anatomical distribution. Potentially malignant disorders of the oral mucosa are also indicators of likely future malignancies elsewhere in oral cavity and not only site-specific predictors.^[9]

The result of the present study has revealed that (94.5%) of tobacco users were male and rest (5.5%) were females. This observation is found to be similar with the studies conducted by Mehta et al. (1972)^[6] and Gupta PC. (2003)^[10] and Ali NS. (2009).^[11] The findings in our study regarding the age showed maximum tobacco users to belong to 18-38 years. Moreover a few studies conducted by Georgia KJ. (1993)^[12], Tomar SL. et al. (1997)^[13], and Ali NS. (2009)^[11] have found that young and adolescent age group is vulnerable for tobacco addiction. The present study also highlights the distribution of tobacco type consumed by tobacco users. It was also found that tobacco in combination with areca nut was consumed by one-third (37.2%) of the total tobacco users, followed by 35.9% who had the habit of cigarette smoking alone.

Potentially malignant disorders are usually found on the buccal mucosa, followed by gingiva, tongue and floor of the mouth.^[14] Hard palate and bilateral buccal mucosa was found to be the most common site (43%) showing mucosal changes in our study. In the present study OSMF was found to be the most prevalent potentially

malignant disorder among tobacco users aged between 18-38 years and 38-58 years. OSMF was found to be most prevalent in male tobacco users (33.4%) as compared to female tobacco users (29.1%). Similar findings and similar spectrum of distribution of oral potentially malignant disorders were detected in a Taiwan in a study conducted by Chung et al. (2005).^[15] OSMF was followed by tobacco pouch keratosis in 19.3% male tobacco users whereas smoker's melanosis constituted 16.4% male tobacco users. These results were in accordance with the results of Mehta PC. et al. (1977)^[16], Satyanarayan G. (1989)^[17], and Rizzolo D. et al. (2008).^[18]

372 individuals were habitual of chewing tobacco with areca nut. OSMF was found to be prevalent (89.2%) oromucosal change in these individuals. Leukoplakia was the second most prevalent lesion (7.8%). These results were in accordance with the studies conducted by Macigo FG. et al (1995)^[19], Gupta PC. et al. (2003)^[10], Dongre AR. et al. (2008).^[20]

CONCLUSION

The results of the present study pointed towards a positive correlation of tobacco use with various premalignant oral conditions. Studies covering a large population correlating the demographic details, socio-economic factors, influence of cessation of habits, and involvement of both genders as sample subjects may yet prove beneficial.^[21] The results of the present study confirm oral mucosal examination relevance in patients with any type of tobacco.

It is rightly said that old habits die hard and abstinence from these injurious agents will require strong motivation. Potentially malignant disorders are on the rise in India due to the ease of availability of tobacco products. As responsible health care providers we can not only detect it early but can also help in spreading awareness and thus promote prevention. This study aids in creating awareness among the public regarding deleterious effects of tobacco and also motivating them for tobacco cessation. Further large longitudinal form studies are required to improvise our results.

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